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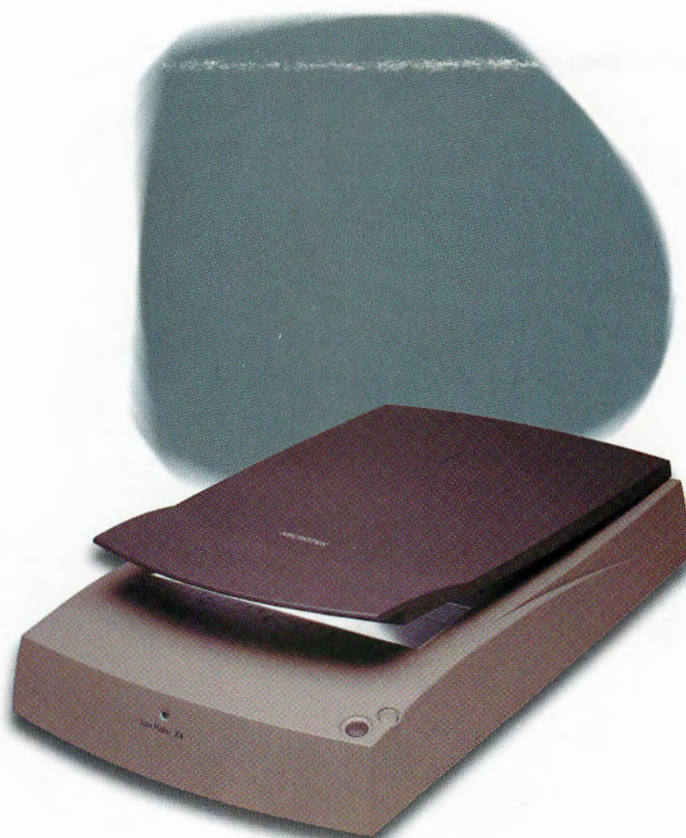
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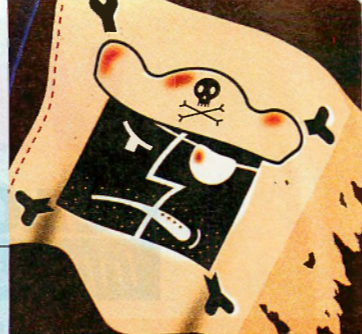
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In the beginning, a lone pirate flag flew over a small building on Bandley Drive in Cupertino, California. This was the birthplace of the Macintosh computer, an underground project thumbing its nose at the corporatization of Apple Computer—itself a company founded by a pair of hackers and phone phreaks—and from its first days it has appealed to the **rebels**, the **iconoclasts**, the **misfits**, and the **nonconformists**.

The Mac has always been something of a closed box, seemingly immune to tampering and customization. But this has just whetted the appetites of thrill-seeking **hackers**, from the wily **programmers** who devised the first system extensions to the performance-hungry clock chippers of the modern era. In a way, the Mac's cute self-sufficiency is a challenge to dig behind the smiling veneer and venture into forbidden territory.

In this issue, we salute those who've kept alive the Mac's swashbuckling ethos. This machine isn't just about ease of use and pretty pictures—it's about **creative power**, the ability to **make your mark** and **change the world**. You can use this power for good or evil, and in the following pages we'll explore the gray area in between **...and show you where to draw the line.**

WAR ENDS!

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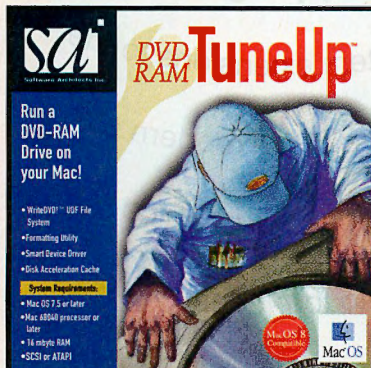
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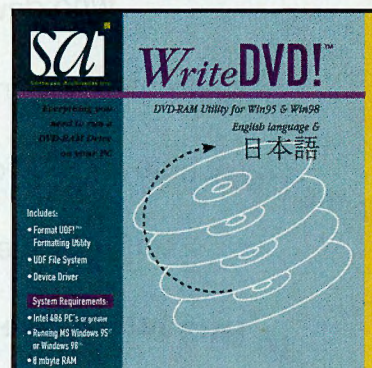
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Mac

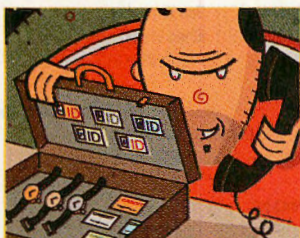
ADDICT

30

JUST TO THE LEFT OF THAT JUMPER, you'll find—aargh! Screaming death!



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YEAH, BUDDY, I got your watch cursors right here!



YOU DON'T HAVE TO BE A SCOT to stage your own Burn's Night.



OUR DEFIANT JOLLY ROGER was hand stitched by John Ueland.

24 Void Your Warranty

Make your iMac mouse light up. Paint your Macintosh case à la Martha Stewart. Overclock your G3. Solder a floppy drive to your iMac. Foolhardy? You betcha. Learn how to void your Mac's warranty with 10 hair-raising hardware hacks.

BY DAVID REYNOLDS

32 Can You Make a Fake ID?

The latest round of printers and scanners makes it easier (and cheaper) than ever for the unscrupulous to fake an identity. Our own Robert Capps discovers just how easy it is—and reports on what hardware to watch for.

BY ROBERT CAPPS

40 Technology's Most Wanted

Hotline, MP3, game emulators: These are the three renegade technologies that Silicon Valley doesn't want you to know about. We teach you what they do, why they're so feared, and how you can use them.

BY MARK SIMMONS

how to

74 Digitize Your Wax (That Is, Burn Your Own CDs)

Looking to put all those records and tapes onto CDs so you can listen to them in the car, on your portable CD player, and with your computer? We walk you through capturing audio from any source and burning it to a fresh disc.

BY OWEN W. LINZMAYER

78 Turn Your Mac into an Internet Radio Station with QuickTime 3.0

That's right, blowhard! You can take your incoherent ramblings to the Web and reach more people than Rush and Howard combined. All you need is QuickTime 3.0, a Mac, and a modem.

BY MARK SIMMONS

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10 Editor's Note

So why did we choose to go pirate? It's the spirit of the Mac, don't you know.

12 Letters

Finally—a serious letter about serious letters. Adam will be proud.

16 Get Info

We have the scoop on the Microsoft trial—and we dish it up for you. Then we tell you about the best place to buy your next Mac online. Plus, a special valentine to Steve Jobs and a brand-new installment of the *MacAddict Index*!

22 Cravings

We've picked three of the coolest pieces of hardware in existence for this *Cravings* installation.

46 Reviews

Marquis de Sade move over, because we tortured unsuspecting pieces of hardware such as the iMac, Epson Stylus Color 740, and Umax Astra 1220U. Then we tormented innocent graphics apps including Adobe Illustrator 8.0, Extensis Mask Pro 2.0, and Extensis PhotoTools 3.0—plus we threw a Lara Croft or two to the crocodiles. See which items survived.

72 Power Play

Mac gaming is back on track and moving at 3D-accelerated speeds. If you're dying to see cool game picks and news from ATI and 3Dfx, accelerate yourself to this page.

82 Ask Us

Care to find out why changing Appearances in the Mac OS causes your Mac to thrash the hard drive for a good half minute? We tell you.

112 Shut Down

You really should lie down before you read this. We won't be held responsible if you double over with laughter, you know.

Mac
ADDICT 30
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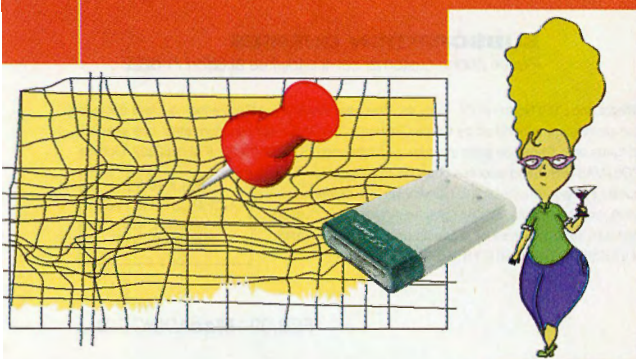
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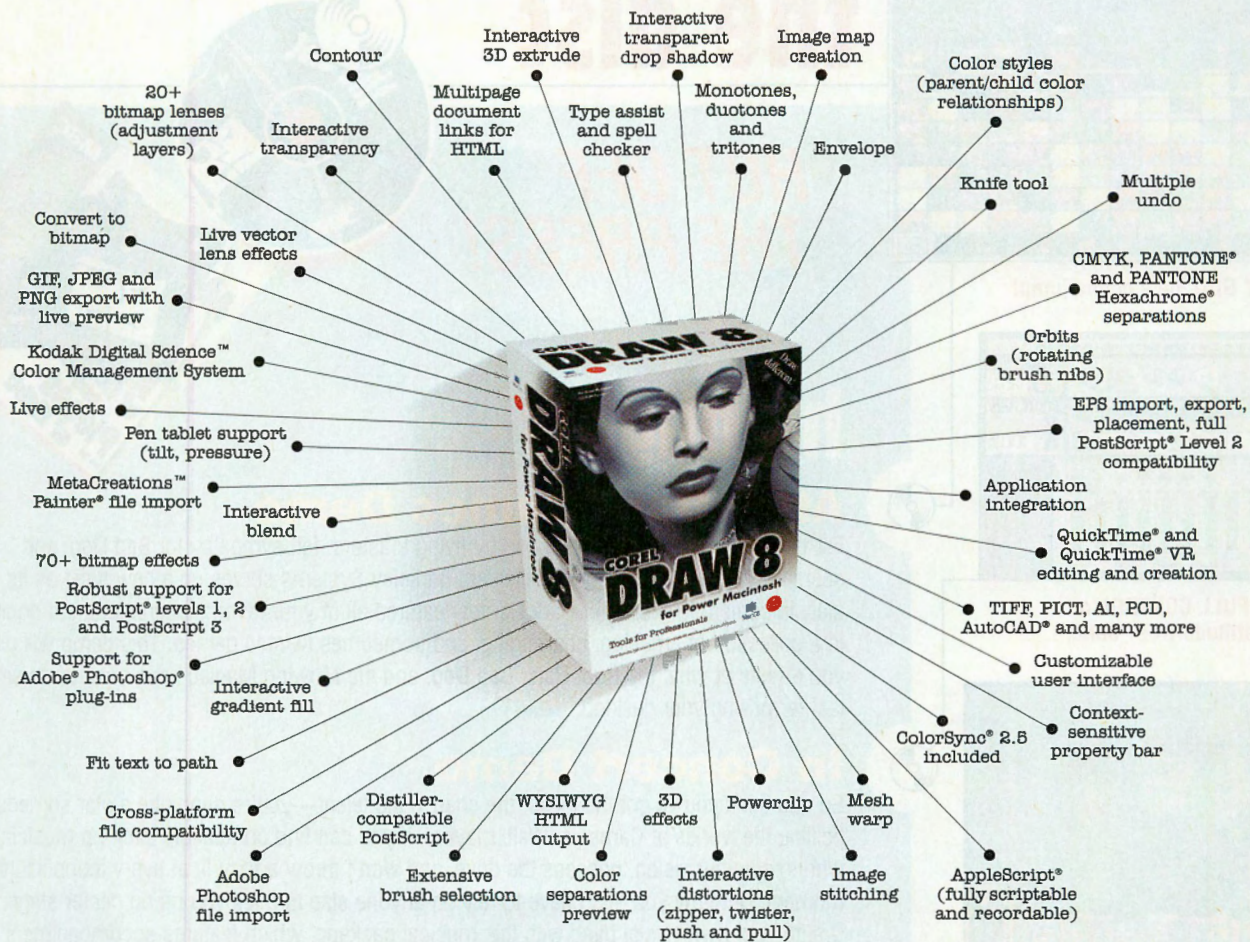
We love to innovate, we love to have fun, and we have a cast-iron rule to always deliver spectacular editorial value. That means doing whatever it takes to give you the information you need. With any luck, we'll even make you smile sometimes.

Thanks for joining us.

Lenz rock! How old are you, young lady? Kathy didn't care—then something changed. Pepsi? What the heck is that?



BUT REALLY DARLING,
thumbtacks are just too
1998. Ufufus, get me
another martini!



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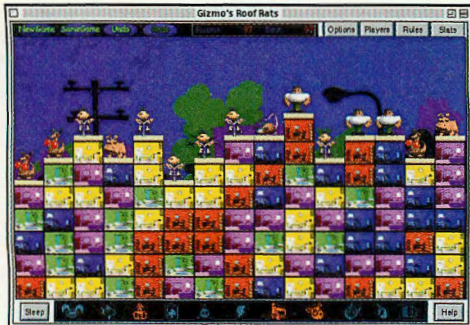
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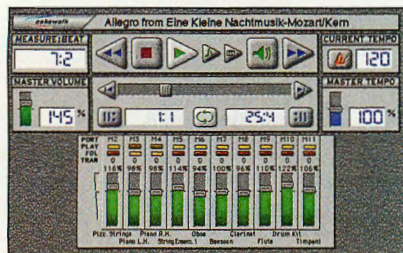
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highlights

After Dark Games Demo

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In Concert Demo

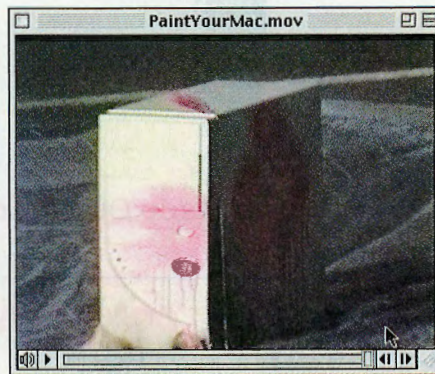
So you think you've got the looks, the charm, the talent—you're gonna be a star someday, tickling the ivories at Carnegie. Well, maybe...if you can find compatible back-up musicians who share your vision, possess the drive, and won't throw a tizzy fit at every inopportune moment. But now you don't have to rely on anyone else to back you up on center stage. Create your own virtual band with this musical package, which features accompaniment from all instruments. Then bask in the spotlight. Encore! Encore!

Star Wars DroidWorks Demo

Though this game was designed with kids in mind, you can bet that us bigger kids will get a kick out of it, too. Help the Rebel Alliance overcome the evil Empire—design and build droids that will help you complete important missions. Test your droids to see how close you are to becoming a Master Droid Builder. May the force be with you.

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Dave does Martha! Well, at least his best impression of her as he demonstrates how to paint your Mac in this month's Staff Video. Then get the exclusive scoop on how to paint a PC, MacAddict-style, compliments of the rest of us.

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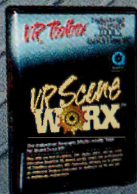
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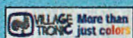
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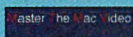
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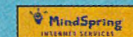


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editor's note

Oh, why do we do the things we do? See the disclaimer below.

This issue is one we've been kicking around for a while. But because it deals with some sensitive topics, I wanted to tell you why we chose to hoist the Jolly Roger on our cover and delve into the shadier side of using the Mac. Although it sounds suspect, a

penchant for the romantic defiance of the pirate days of yore is an essential part of Macintosh history. The Mac was conceived under the pirate flag in Cupertino, after Jobs had been "exiled" to a research facility on the Apple campus.

Legend has it that he hoisted the pirate flag over the building and took on the task of bringing the Macintosh project to fruition—a rebellious act without which there would be no Mac.

In some ways, that's what defines the spirit of the Mac—that sense of rebellion, of not following the crowd, of knowing something cool when you see it. This month's issue strives to capture that essence. Here's a closer look at the individual articles and what we're hoping to achieve with them.

Void Your Warranty

This feature is for the überhacker, the tinkerer who isn't content to leave well enough alone and isn't afraid to risk potential harm while going about it. In the PC world, hardware hacks are a necessary chore; on the Mac side, they are an illicit thrill. Believe it or not, the four hacks we chose to highlight are in the lower range of danger—some we didn't mention are much more dangerous, risking almost certain damage to your Mac or to yourself. We performed each of the larger hacks ourselves, and we're reasonably sure that no harm will come from any of them. We

wrote about these items either because we got lots of requests from our readers for them (for example, painting your Mac) or because they're undeniably cool (making your iMac mouse light up). We believe the usefulness or gosh-wow factor of these hacks outweigh their inherent dangers. That said, readers who have *any* doubt about wanting to do one of these hacks should just hang out in the armchair and enjoy *reading* about them, not *doing* them.

Technology's Most Wanted

There are some things in the Mac world the industry would just rather we didn't talk about—such as MP3, game emulators, and Hotline. The reason? Each of these technologies allows easy violation of copyright laws and software licensing. Thing is, there are also lots of legitimate, legal uses for these technologies. They all offer unique features that aren't available elsewhere, and they are all hard at work transforming the digital world. MP3 is of special note here—it's a hot topic these days, especially with the advent of the Rio player, and unless certain interests in the music industry have their way, it will change the way we get our music.

Can You Make a Fake ID?

With less than \$1,000 and some determination, a shady character can create some pretty convincing IDs—at first glance. The technology is amazing, and it's cheap, but it's also incomplete. These days, actual IDs—driver's licenses, employee badges, and so forth—are more complicated than paper and laminate. They include holograms, magnetic encoding, and the like, which makes them very difficult to replicate completely. We show you how easy it was for our undercover man to create his own, even though we don't condone making fake IDs for illegal purposes. Bear in mind that Steve Wozniak sports a fake department of defiance ID (read that closely) that he pulls out for special occasions, but he doesn't use it to pass bad checks. And that's the difference.

So pull out that eye patch you have in your sock drawer—yes, we know it's there—and play along with us.

Crimes of Type

In the November Ask Us column, we suggested that you can approximate the look of Apple's proprietary Apple Garamond font by tightly tracking any other version of Garamond. Well, that's not quite true. Kathleen Tinkel, faithful reader and font aficionada, had this to say about our technique.

1. Apple Garamond is a custom width of ITC Garamond, which is a popular commercial font anyone can buy from Adobe, Bitstream, and other vendors.

2. As Apple Garamond, the font is—as you note—not available to the general public. But Bitstream's ITC Garamond Narrow is the same design, and the company sells that to anyone.

3. Tight tracking will only change the spacing of the letters, not make them narrower as Apple Garamond requires. Horizontal scaling is the trick you need.

4. You can't use "any other version of Garamond." ITC Garamond is utterly distinctive, not at all like other Garamonds. (Its serifs, line-weight contrast, and other design features are exaggerated, and it has a dramatically high x-height compared to traditional Garamonds). You must start with ITC Garamond Light (and Bold) to approximate the look of Apple Garamond.

As for doing what I describe—changing the set width to make the regular ITC Garamond narrower—it's really a terrible thing to do to any typeface. It changes the proportion of the line weights—the vertical stems become thinner as you compress the characters, but the horizontals remain the same. It makes type look sickly. But until Apple finally arranged to get the font to most of its ad agencies, they were just squishing standard ITC Garamond. Add to that the Apple style of tightly tracked type, and you really do get a mess.

We stand corrected, although we're still pretty darned fond of Apple Garamond (as well as ITC Garamond). And yes, it's been so thoroughly used by Apple that any use of it will suggest Apple. But being Mac addicts, we just can't resist.

That's what defines the spirit of the Mac—that sense of rebellion, of not following the crowd, of knowing something cool when you see it.

Now on the Mac!

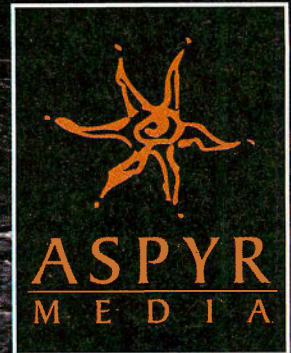
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letters

What those two dogs did to that Pintel doll—why, it's inspiring!

This Month

WRITE TO US: MacAddict, 150 North Hill Drive, Suite 40, Brisbane, CA 94005, or email to letters@macaddict.com.
FOR CD PROBLEMS: Go to <http://support.imaginemedias.com>.
FOR SUBSCRIPTION QUERIES: Call (toll-free) 888-771-6222.

WE DOUBT IT

I am sick of the *Letters* section of the magazine. Instead of using the space as an effective forum for people to place their opinions on Mac happenings, it has become a dumping ground where the stupidest letters are printed. There is an important difference between *fun* and *stupid*, and I don't think you quite understand it. If you want to make your magazine fun, putting useless and annoying letters in the front section isn't the way. I have yet to see a serious critique of the magazine printed. I do, however, have to commend you on printing Devin Durham's letter on his Mac customization project. It was a breath of fresh air in an otherwise typical December mail section. Maybe if you stopped encouraging silly mail, more interesting pieces would follow.—GABE GRAFF

THERE'S A 12-STEP SOLUTION

My internal CD died, so I put an internal Zip drive in the slot. I put an external 24X CD on top of my comp box. Now, when I eject my CD, my beer bottle gets knocked off the table. Can you help? Should I upgrade to cans?—BRENDON BALON

I THINK HE LIKES YOU

I know, I keep emailing you guys. I just want my fame. So I'll tell a great joke. Windows for Dummies. Ha! Ha! Ha! Ha! And furthermore, look at the Outlook Express icon. There's a letter *e*, and under



that, an envelope. E. Envelope (representing mail). E. Mail. Email! Those witty Microsoft people. P.S.: Nikki, I think Rob likes you.—PHIL L. WELCH

FEEL THE BURN

I found it appropriately ironic that Mark Simmons wrote your "30 Days to the Perfect Mac" (Dec/98, p32) article! Ha ha ha! Snort! Weee. That's great.—ZYLER VEGA

I looked at "30 Days to the Perfect Mac." I stared at my hard drive (which is subtly named iPowerMac, by the way). I knew what I had to do. I yanked preferences. I purged aliases. I obliterated SimpleText clones with clenched teeth and a wet brow. I felt the

burn. Beefcaaaaaake! There's good news and bad news. Which do you want first? Oh, well, you guys are probably busy weeding out worms from the next CD...so I'll choose. Good news: I slimmed 100MB from my hard drive, rid myself of unsightly desktop jiggies, and am noticing a considerable increase in overall performance. The bad news—I had no time for the 30-day timetable, so I did it in 30 minutes. I can't stop. Every morning I start up to a rigorous regimen of three tri-sets of file finding, yanking, and alias crunching. I can't feel my legs at all. Is that normal? I hold your wonderfully helpful troubleshooting article responsible and demand an iMac for damages. If not, just keep burning the CD and printing the Good Mac Book. Now, if you'll excuse me, my Systems Folder is looking a little flabby.—D. HARTLEY

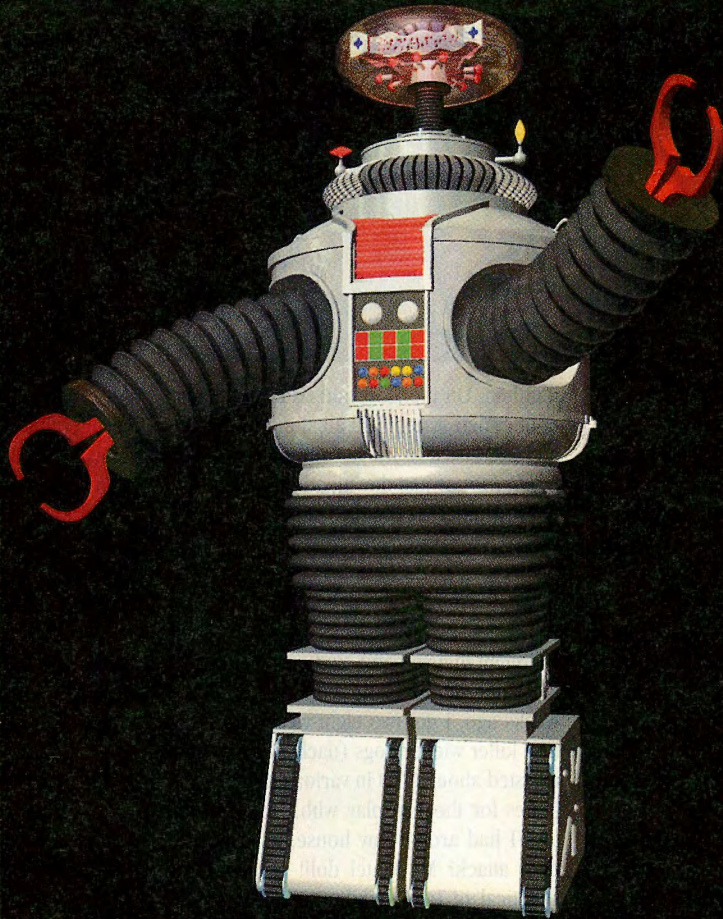
In "30 Days to the Perfect Mac," you suggested putting an alias of the Apple Menu Items folder in the Apple menu. That's fine for the average user who wants to clutter up the Apple menu. Here's what I do: I set the order of the Apple menu using an invisible Return character at the beginning of the alias in the Apple menu to force it to the top of the list. Adding multiple Return characters allows you to set any order you want in the menu.

You can then section the Apple menu as you wish using dividers. For these dividers, I use an alias of the Apple Menu Items folder. I then use ResEdit to make the icon invisible (by deleting the artwork and mask from the



GET ON, GET ACTIVE. Talk to us and to other Mac addicts at the Web site.

DANGER! DANGER!



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When your Macintosh computer is not functioning properly, it is important that you have the right tool to find and correct the problem. And as any knowledgeable robot will tell you, one can never have too many tools when important data is at stake. TechTool Pro 2 checks and repairs more aspects of your Macintosh than any other utility available. Besides repairing and recovering damaged drives (including those with the new HFS+ format), you can also test all those other critical parts of your system that other utilities ignore like RAM, CPU, floppy drives, scanners, modems, Internet connections, CD-ROM drives and much, much more. TechTool Pro will even help your computer run faster by optimizing your disk drives.

But just because TechTool Pro is the most advanced Macintosh troubleshooting utility available doesn't mean that it's difficult to use. In fact, we've added an easy-to-use interface that makes checking and fixing your Macintosh a snap. For the advanced user, our expert mode allows you to control and configure TechTool Pro in almost any way you wish.

So if Macintosh troubles are making you feel like a bubble-headed booby, check out TechTool Pro. After all, you have the most powerful computer in the galaxy. Shouldn't you be using the most powerful utility?

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icon resource, but leaving the icon resource present). Using a combination of Return characters and a set number of dashes, you can position the dividers wherever you need to divide up the various items in the Apple menu. Whenever you want to go into the Apple Menu Items folder, select one of the dividers.

Previously I used invisible folders, but if you accidentally selected the divider, you ended up in an empty folder, which could create confusion. Now, if you accidentally select the divider you are no worse off than if you were still holding down the Apple menu.—CHUCK HARPER

NOT WITHOUT 3DFX INSURANCE

Looking at the cover art on The Disc, I realized something. Does anyone else think that Lara Croft is going to need a 3D accelerator card—compatible chiropractor?

—SCOTT C. SMITH

AT THE VERY LEAST

Today, while reading your glorious magazine on my couch, I noticed that as I was turning the page, I was waiting for it to load. Does this mean I need a new modem?—EVAN LAVINO

IT'S JUST YOU

Is it just me, or are terms like *voxel* and *tetrel* really things you should be pulling out of the blue and assuming everyone knows?—DAN VANDERKAM

NOT UNTIL HE'S OUT OF SOLITARY

Can Prison Guy come over and play?

—PETER DUDDINGTON

DON'T DO IT!

In case nobody else has mentioned this, the letter in the November issue about the end of the world coming on August 28, 1999, referred to the planetary alignment happen-

ing then. On the aforesaid date, the planets of our solar system will align in the shape of a cross. Listen to track 7 on the Orb album *Orblivion*, or just download this file: <http://www.alaska.net/~thejoel/s.a.l.t.mp3>.

—JOEL VONNAHME

IT TAKES A LICKING...

I thought that you guys and gals would get a kick out of this little tidbit. About three weeks ago, I got two eight-week-old miniature killer wiener dogs (dachshunds). I had invested about \$200 in various dog toys and bones for them to play with, but of all the toys I had around my house, what do they both attack? My Pintel doll! At first I was skeptical of Intel's ability to make a good dog chew toy, but after *three* weeks of constant assault (they have both completely disregarded all of the other chew toys), I have a newfound respect for Intel. I think it should quit the semiconductor business altogether and really go for the gold—make dog chew toys.—MAX MULLER

ROB DOES ANYTHING FOR A DOLLAR

After watching the QuickTime movies you send on The Disc, one wonders if you guys do anything. What do you guys do? Anything?—CHRIS SWAFFIELD

WE LAMINATED OURS

Am I the only one who ripped off the cover of December's *Wired* ("83 Reasons Why Bill Gates's Reign Is Over"), framed it, and highlighted reason 53?—BILL CALABRESE

DON'T TRY THIS AT HOME

It is only with Mac addict ingenuity that I email this letter. You see, I was ready to pop in your new CD when I noticed that I needed to swap my CD player for my battery on my PowerBook G3. It was then that I noticed I left the electrical cord at the

office! What would I do with only two hours left on my battery? Most everyone owns a boom box or two, and most of those electrical cords are similarly shaped. So with some modifications (using a wire cutter I found in my toolbox) I whittled away the plastic from the end of the cord that plugs into the power supply. Voilà! Now I can get some much-needed freelance work done tonight—yuk!—GARY RITCHIE

WHY DON'T YOU MARRY IT THEN?

I think I like the iMac! iMac does not stand for inferior Mac, impaired Mac, intricate Mac, irritating Mac, inconsequential Mac, insufferable Mac, ineffective Mac, insipid Mac, indecent Mac, or impossible Mac. More like interesting Mac, impressive Mac, inspirational Mac, irresistible Mac, innovative Mac, invincible Mac, incomparable Mac, and inexpensive Mac (relatively speaking of course). If pushed, I might even halfheartedly accept imperfect Mac or incomplete Mac. But I'm sure I like the iMac.—MAX HAHTO

YOU KNOW YOU'RE A MAC ADDICT WHEN...

...your monitor is bigger than your TV.
—JOHN MESOLORAS

...you try to automate brushing your teeth using AppleScript.
—ROBERT GOODWIN

...you clean your room and keep looking for the Arrange By Name option.
—STEVE PERRY

...virus be damned, you put The Disc in to get the goodies.—SCOTT MOUSSEAU

...you can't admit to yourself that you are a Mac addict.

...you say to yourself, "I can shut down anytime I want to."

...you truly believe your Voodoo2 card gives you magical powers.

...you truly believe Virtual Viagra also gives you magical powers.

...your idea of adult entertainment is watching the flying toasters in After Dark.

...your idea of a fun Friday night involves flying toasters, Virtual Viagra, and thinking up more You Know You're a Mac Addict Whens.—NIELS COSMAN

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The 411 on the new StuffIt format, jargon ending in *ML*, and a valentine to Steve Jobs!

The New Storage Suspects

What will you be keeping your files on six months from now?

What with businesses folding, new formats emerging, and a passel of media options to peruse, the normally unsexy storage business has been heating up this winter. Here are a few of the more scandalous and spectacular developments.

DVD Country Codes

Movie industry divides, conquers

If you've given your Mac the ability to play DVD-Video movies—available as an option from Apple or as an upgrade kit from Elecedo Technologies (408-441-6060, <http://www.e4.com>)—you may have noted a limitation of this hot new video format. To help moviemakers divvy up the worldwide market, the DVD-Video format includes regional codes, so that, for example, North American DVD-Video players will only work with North American movie releases.

Here's a rundown of these regional codes; a special prize awaits the reader who can tell us what the Australian and Mexican markets have in common, or why it's important to the movie industry that North and South Korea have mutually incompatible DVD formats.

Region 1: The United States, its territories, and Canada

Region 2: Europe, Middle East, Japan, and South Africa

Region 3: East and Southeast Asia (including South Korea)

Region 4: Australia, New Zealand, and Pacific Islands; Mexico, Central America, and South America; Caribbean

Region 5: Russia and its former satellites, Indian subcontinent, Africa, North Korea, and Mongolia

Region 6: China

SyQuest Shuts Down

Guess we can quit waiting for that USB SparQ drive. In November, cash-strapped SyQuest Technology closed its doors and filed for bankruptcy, bringing the 16-year career of the removable-storage pioneer to an ignominious end. The company has made tentative arrangements to sell off most of its assets—including patents, equipment, and inventory—and says it will use some of the proceeds to provide warranty service for its current customers. The identity of the buyer had yet to be revealed as of press time.

Iomega Hangs In There

SyQuest's longtime rival has also seen its share of difficulties. After a profitable 1997, Iomega reported losses for the first three quarters of 1998; revenues have remained flat, despite ever-increasing unit sales. After a round of belt tightening, the company predicts a return to profitability next quarter. In the meantime, Iomega is still bullish about its popular Zip drive, shipping a see-through USB version for iMac owners and readying new 250MB disks. The Zip USB drive carries a street price of \$149.95 (Iomega, 800-697-8833 or 801-778-1000, <http://www.iomega.com>).

DVD from La Cie

On the higher end of the capacity spectrum, La Cie has delivered a rewritable DVD-RAM drive. This external SCSI device reads all manner of CD and DVD formats, and can record gigabytes worth of data on special DVD-RAM cartridges. La Cie offers double-sided Type I and single-sided Type II car-

tridges, with a capacity of 2.6GB per side. The single-sided Type II design lets you remove the inner DVD-RAM disc from its cartridge; though current DVD-ROM drives can't read these discs, future drives should be able to, enabling DVD-RAM drive owners to share their discs with DVD-ROM-equipped friends. \$799 from La Cie (503-844-4500, <http://www.lacie.com>).

Emerging from the Vapors?

After months and months of hype and growing expectations, two long-awaited storage devices inched a little closer to reality at November's Comdex trade show. Castlewood Systems announced that it had begun shipping its high-performance 2.16GB Orb drive to selected computer vendors; when the external drives appear, they'll carry a list price of \$199.95, and the disks will be \$29.95 apiece (Castlewood Systems, 925-461-5500, <http://www.castlewoodsystems.com>). Iomega also trotted out a bunch of third-party endorsements for its teeny 40MB Klik drive, which it says will start showing up in digital cameras and other mobile gadgets by early 1999. Honest, Iomega promises.—MS



Illustration by Lloyd Dangle

Illustration by Chris Vanderhoof

Microsoft in Crisis

Let's just call it advocacy journalism

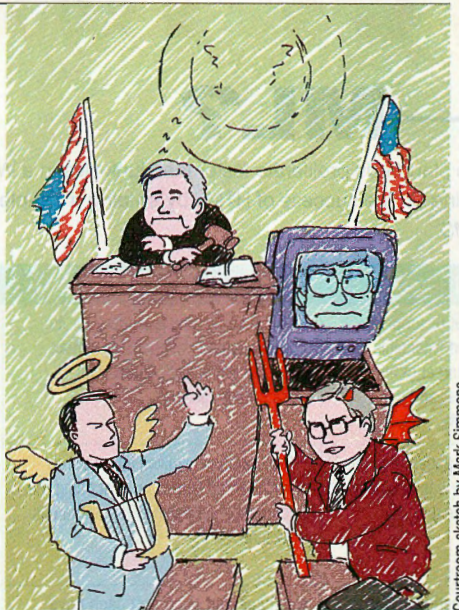
The U.S. Justice Department continued its relentless dog pile onto the besieged Microsoft the past few months, delivering blow after rib-cracking blow to the weakened software vendor. It appears the once mighty, now reeling maker of the Windows operating system (otherwise known as Windoze, Winblows, Winsucks, and I Hate This Piece of Trash) used its operating system monopoly to bully and bribe people into using Internet Explorer in its monomaniacal quest to crush Netscape Communications.

Perhaps the most devastating witness-delivered blow came from America Online Senior VP David Colburn. He testified that AOL's decision to bundle Internet Explorer with its online service had less to do with the quality of Microsoft's browser technology than with the fat stacks of money Microsoft waved in front of the huge Internet service provider. Not only did AOL gain extra subscribers from having its icon appear on the Windows desktop, but Microsoft also agreed to give AOL \$600,000 if it converted enough users to Internet Explorer. As a further incentive, Microsoft designed Internet Explorer to showcase AOL in its Internet Setup Wizard for first-time users. While Microsoft attorneys demonstrated that denial isn't just a river in Egypt, insisting that AOL chose to bundle Internet Explorer based on its technical merits, Colburn's testimony made it clear AOL would have bundled dead cockroaches if that's what it took to get its icon put on the Windows desktop.

AOL further humiliated Microsoft shortly after Colburn's testimony by announcing its intention to buy Netscape and sell off that company's server software to Sun Microsystems. It's still unclear at press

time what AOL plans to do with Netscape's Web browser, but the massive joining of forces will surely conflict with Microsoft's current lord-over-everything-on-the-planet business model.

In his testimony, Apple Computer's senior VP of software engineering, Avie Tevanian, told other horrific tales of power-mad Microsoft atrocities, including its attempt to get Apple to "knife the baby"—kill QuickTime for Windows. Tevanian also said that Microsoft threatened to discontinue Microsoft Office for the Mac if Apple did not conform to Microsoft's dogmatic guidelines for promoting Internet Explorer. Apple, of



The benevolent DOJ takes Microsoft to task.

course, stuck to its guns on QuickTime, but was less successful at keeping the phrase "Internet Explorer is my browser of choice" from worming its way into the speech patterns of certain high-level executives.

Microsoft's unprecedented greed really came out at the trial in the form of a ghastly memo from Joachim Kempin, Microsoft's senior VP of sales to PC markets, to Bill Gates and other top Microsoft executives. The memo, which *MacAddict* was unable to obtain at press time, reportedly outlines long-term strategies for dealing with the side effects of Microsoft's ever-growing appetite for ripping people off. In the memo, Kempin points out that because Microsoft continues to bump up the cost of Windows while PC prices decrease, at some point it will become more sound economically for Compaq and other hardware biggies to develop operating systems of their own. Another gem of inspiration Kempin put forth was the notion that Microsoft could suck more money out of the consumer by charging an annual usage fee of some sort.

Perhaps the nadir of Microsoft's showing was the pathetic performance Bill Gates gave in his videotaped deposition. Rambling like a lobotomized chimp, Gates at one point failed to grasp the meaning of the word *concerned* and had to be gently walked through the concept by government lawyers. While these tactics may work before Congress, observers doubt that such behavior is a winning strategy in an antitrust suit.—RC



Courtly Comments

Email excerpts from the trial

"Intel has to accept that when we [Microsoft] have a solution we like, that is decent, that is the solution that wins."

—Bill Gates on keeping Intel in line.

"Gates delivered a characteristically blunt query: 'How much do we need to pay you to screw Netscape?'"

—AOL executive David Cole on Gates's request to have Internet Explorer tied to AOL's software.

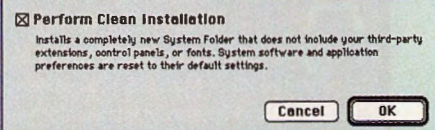
"Charge! Kill HP, IBM, Microsoft, and Apple all at once."

—Scott McNealy, CEO of Sun Microsystems, attempting to get Sun employees revved up about Java.

Clean versus Update

For years, conventional wisdom on installing new Mac OS versions has favored the clean install, in which you create a fresh new System Folder rather than using the installer to update the old one. However, you then have to transfer all your third-party extensions and preference files to the new System Folder. With all the consolidation and renaming of system software files in Mac OS 8.5, merging system folders is trickier than ever—whoops, now you have both ColorSync and ColorSync™ System Profile in your Control Panels folder!

The Clean-Install System Merge in Casady & Greene's Conflict Catcher 8 understands such changes between system versions—but unless you own this, your best bet may be to update an existing System Folder. Apple's installer will take care of the complexities of ever-morphing system software while preserving your settings.—MS



To perform a clean install, click the Options button on the main installer screen and check this box. But we don't recommend it.

get info

get info

What the Hell—ML?

These days, standards and would-be standards proliferate faster than junk files in a Web browser's cache. Most of them are piggybacking on the success of HTML by swiping a couple of its letters. Here's a crib sheet for Webmasters.—MS

	Original Purpose	Current Status	Recommendation
SGML (Standard Generalized Markup Language)	This all-purpose structural description language is as flexible and extensible as it is obtuse. SGML is a superset of all modern markup languages, and the ancestor of HTML and XML.	SGML has become legendary for its complexity and impenetrable syntax. Naturally, it's wildly popular with government agencies.	Shun it.
HTML (HyperText Markup Language)	The lingua franca of Web pages, this relatively simple set of codes was originally intended to reflect the structure of a document.	HTML has now evolved into a purely visual markup language, describing the document's appearance rather than its structure.	Cower behind a graphical Web site editor.
DHTML (Dynamic HTML)	Unlike other items listed here, DHTML isn't a standard. Rather, it's marketing jargon that means you're using a combination of scripting and cascading style sheets to create interactive Web pages.	Netscape and Microsoft each have their own pretty much incompatible implementations.	Cower behind a high-end graphical Web site editor.
XML (eXtensible Markup Language)	Now that HTML is just for appearance markup, the standards bodies have created a new structure description language. Rather than dictating how to display a document, XML describes its data's structure.	One day, XML-savvy applications will use style sheets to figure out how to format XML data. In the meantime, you can convert it into HTML for presentation to the user.	Look into it.
PGML (Precision Graphics Markup Language)	To free us from bandwidth-clogging bitmaps, the World Wide Web Consortium (W3C) is taking proposals for a 2D vector graphics language. PGML is Adobe's PostScript-based submission.	The W3C will ultimately pick and choose from all submissions to produce an idealized vector graphics standard.	Wait for the W3C to sort it out. That's why they make the big bucks.
VML (Vector Markup Language)	Microsoft has submitted its own vector graphics proposal to the W3C, based on the imaging model in Microsoft Office.	Having submitted its VML pitch, the ever-impatient Microsoft plans to do an end run around the standards process by going ahead and implementing VML in Internet Explorer anyway.	Call the Department of Justice.
VRML (Virtual Reality Modeling Language)	Everybody loves 3D graphics, so why not have a markup language for them, too? Enter VRML, based on a standards submission by Silicon Graphics.	It has totally fizzled. The hype-laden debut and quiet decline of VRML demonstrate that just because you call something a standard doesn't mean anyone will use it.	Stick a fork in it, it's done.



Our Valentine

What hunk of burnin' CEO could possibly make a bigger, cuddlier companion this February 14 than Steven P. Jobs? Those bedroom eyes, that cool-as-a-cube, chic black mock turtleneck. Doesn't he just make you wanna squeal? Now don't get too worked up—after all, he's taken! But that's not going to stop us from making Steve Jobs our valentine. And thanks to some ace interviews run in such publications as *Fortune*, we know more about our dreamboat than ever!

STEVEN P. JOBS

AGE: 43

FAVORITE BEVERAGE:

Bottled Evian water

FAVORITE BREAKFAST

FOOD: Granola and apple juice

PET PEEVES: Death threats, floppy drives

DREAM JOB: At the Sony of the computer industry

STRONGLY HELD BELIEF:

Television and computers won't merge

WHAT HE'D LIKE FOR CHRISTMAS: Palm Computing

WORST NEUROSES: Picturing people as being five years old when he gives them the ax.

HEROES: David Packard (Hewlett-Packard), Bob Noyce (cofounder of Intel)

ROLE MODEL: Bob Dylan

BIGGEST REGRET: Not asking that girl to dance

Take This Stuffit and, er...

Stuffit's Compression Format Changes

Aladdin Systems' Stuffit compression products are a fundamental part of the Mac owner's experience. When Aladdin makes a radical change to its compression tools, it affects us all. Version 5.0 of the Stuffit suite makes just such a change.

The new Stuffit archive format makes smaller archive files and uses MacBinary III encoding to preserve all of Mac OS 8.5's extended Finder attributes. It retains Get Info comments, Mac OS 8.5's icon "badges" and custom routing information, and long file names in any language.

But these improvements come at a price. Version 5.0 Stuffit products can open archives in the earlier format, but will save archives only in the new one, which only other 5.0 utilities can read. So if you create archives using Stuffit Deluxe 5.0 or DropStuff 5.0, your colleagues will need Stuffit Expander 5.0 to open them.

Aladdin Systems can be reached at 831-761-6200 or <http://www.aladdinsys.com>. You'll find the freeware Stuffit Expander 5.0 on The Disc.—MS

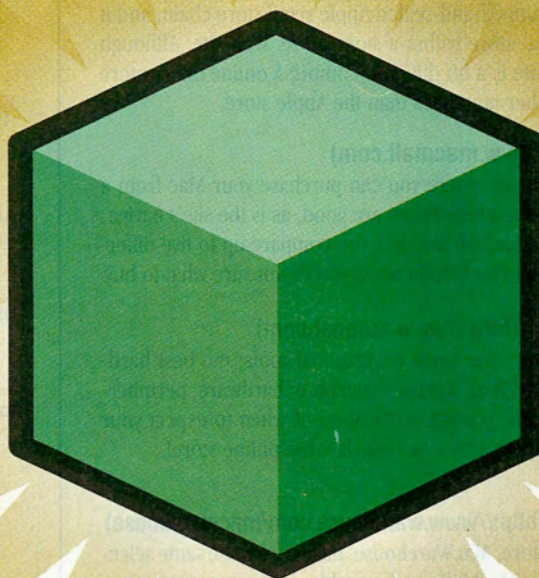


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The Best Online Mac Buy

If the idea of actually leaving your current Mac for a few minutes in order to pick up a new one leaves you with a sensation of white-knuckled, side-cramping terror, relax. You can order the latest Pentium-walloping PowerPC from the comfort of your own home. To help you, we checked out five of the best-known online retail outlets.—*DR*



The Apple Online Store (<http://store.apple.com>)

This site lets you build your Mac to order, sports a simple interface, features a section listing some items that might go well with your purchase, and best of all, offers a payment plan. You can't be quite sure when you'll get your Mac, though.



CompUSA (<http://www.compusa.com>)

CompUSA is the stamped-and-sealed Apple retail store chain, and it even offers a virtual store-within-a-store on its Web site. Although navigation on the site is a bit difficult, CompUSA online offers more peripherals and other amenities than the Apple store.



MacMall (<http://www.macmall.com>)

MacMall has a Web site where you can purchase your Mac from a selection of rebuilt models. Prices are good, as is the site's navigation and selection. MacMall also lets you compare up to five different models, which can be helpful when you're not sure what to buy.



Cyberian Outpost (<http://www.outpost.com>)

This online-only store has great navigational tools; the best hardware prices we could find; a great selection of hardware, peripherals, and software; and prompt notification of when to expect your order. Give the Outpost a try—it's our favorite online store!



MacWarehouse (<http://www.warehouse.com/macwarehouse>)

The other catalog store, MacWarehouse, has roughly the same selection and prices as MacMall, and roughly equivalent navigation. MacWarehouse features a nice "you may also want to consider buying this" selection when you're getting ready to check out.



The new Apple System Profiler (version 2.1.2)—included with Mac OS 8.5—is a great troubleshooting tool. Apple System Profiler's main purpose in life has always been to gather tons of useful information about your Mac, but the new version adds AppleScript support, drag-and-drop support, more software information, Open Transport settings, and much more. The upshot? Run it and print out the result before you call tech support. That way, you'll know

RUN THE SYSTEM PROFILER, and you're guaranteed to learn more about your Mac than you ever dreamed—or even really wanted to.

all about your Mac, and you'll be able to inform those who are trying to help you, too.—*DR*

The tip above is taken from Apple's Tech Info Library, which you'll find at <http://tiil.info.apple.com>.

Software overview	
Mac OS overview	
Finder:	8.5
System:	8.5 US
Active enabler:	None
Startup device	
Name:	System
Type:	Hard drive
Memory overview	
Disk cache:	4.25 MB
Virtual memory:	137 MB
Built-in memory:	136 MB
External L2 cache:	512K
Hardware overview	
Machine ID:	67
Model name:	Power Macintosh 9600 series
Keyboard type:	Apple Extended Keyboard

The MacAddict Index

FOCUS ON: iMAC, HOLD THE ANCHOVIES!

Note: Pizza equivalents are based on an order of three Round Table Gourmet Veggie pizzas from walter.com, including \$1.50 delivery charge. With a total tab of \$29.25, this comes to \$9.75 per pizza.

Estimated monthly payment for an iMac purchased under the Apple loan program: **\$29.74¹**

Number of monthly payments required: 67¹

Number of pizzas this is equivalent to: 204

Number of pizzas you'd save by paying cash for your iMac: 71

Net worth of William H. Gates III as of November 23, 1998, measured in pizzas: 6,121,687,594

FOCUS ON: STORAGE RAGE!

Fraction of U.S. home computer users who report using 3.5-inch floppy disks: 94%²

Fraction of U.S. and Canadian computer users who use floppy disks at least once a week: 70%²

Rank of email and floppy disks among most frequent means of exchanging files with other users: 1, 2²

FOCUS ON: THE URGE TO MERGE!

Number of America Online subscribers as of November 12, 1998: 14 million plus³

Number of registered users of AOL's ICQ chat software as of October 27, 1998: 20 million plus³

Number of registered users of Netscape's NetCenter portal as of November 24, 1998: 9 million plus⁴

Cost of purchasing a pizza for each of the above users: \$399,750,000

FOCUS ON: SOSUMI!

Amount that toy and comic company Marvel Enterprises must pay Apple Computer for a fizzled licensing deal: \$1.5 million⁵

This amount expressed in pizzas: 153,846

Amount for which Imatec is suing Apple Computer for an alleged violation of its imaging patents: \$1.1 billion⁶

This amount expressed in pizzas: 112,820,513

1 Source: Apple Computer; 2 Source: Gallup survey commissioned by Imation; 3 Source: America Online; 4 Source: Netscape Communications; 5 Source: Reuters; 6 Source: Imatec

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AgfaJet

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cravings

Three terribly tempting toys to titillate and tease you

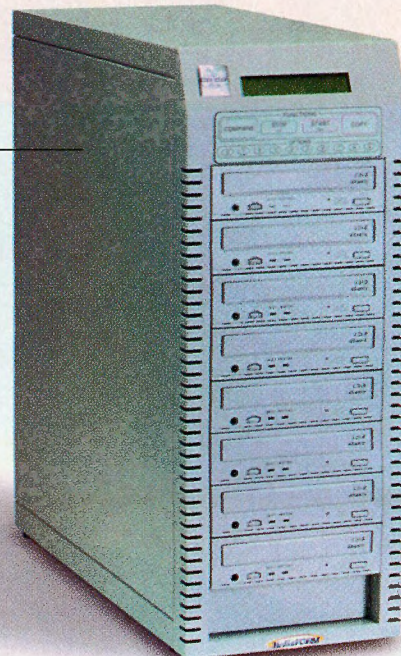
MediaForm CD5900 CD-R

Marcan

In your sick and twisted late-night dreams, you have visions of doing one thing—becoming the next America Online. Imagine the power: creating enough CD-ROMs to bury a major metropolitan area, and all with your unique brand of software on them. But that CD-R drive your spouse bought you during the holidays last year just isn't cutting it—after all, you can only turn out 50 discs a day, tops. Plus, cranking out CDs ties up your Mac so that surfing for new Cow and Chicken Web sites is nearly impossible. What's an aspiring Steve Case to do? Buy a MediaForm CD5900 CD-R, of course. For a mere

ENOUGH DISCS TO BURY THE WORLD

\$6,995, this little beauty can duplicate eight CDs simultaneously, and you can expand it up to 64 drives. It's also self-reliant (which is more than you can say for your own drive)—the MediaForm loads its own blank CDs, and it doesn't require a host Mac to operate, leaving you to do your work without interruption. So how do you get hold of one of these things? Just go to <http://www.marcan.com>, or call 800-635-7477 or 425-635-7477 for more information.—DR



ImageDeck

Microtek

Some folks call it a stand-alone scanning appliance, but you know otherwise. The Microtek ImageDeck is the key to the salvation of many of the world's endangered species. Based on the ScanMaker X6 36-bit scanner (which has a resolution of 600 dpi), the ImageDeck doesn't require a host Macintosh to do its work. That means you can lug it around the headwaters of the Amazon, looking for insect species that are about to go extinct, and scan them, preserving their image for all time. Of course, pressing a bug against a flatbed scanner tends to crush it, and there's that problem of getting a really long extension cord, but those are minor annoyances of the easily ignored sort.

SCAN A BUG, SAVE THE PLANET

After all, the ImageDeck has a built-in Zip drive and floppy drive, and if you have a printer with a parallel port, the ImageDeck doubles as a high-resolution color copier. Neato. So how much does this beast cost? When it's released (as you read this), expect to pay under \$500 for the device. For more information, go to <http://www.microtekusa.com>, or contact Microtek at 800-654-4160 or 310-297-5000.—DR



AlphaSmart 2000

Intelligent Peripheral Devices

That snotty 10-year-old girl keeps slowly riding by your house on her bicycle, her PowerBook G3 prominently displayed in the handlebar basket. She does this every day, and you can't stand it—just because you can't afford a laptop doesn't make you any less of a person, does it? Does it? You don't have to die a slow death of envy, though. Instead, scrape together \$229 and contact Intelligent Peripheral Devices to inquire about the AlphaSmart 2000. This key-

TAKE YOUR WORDS ON THE ROAD

board includes a built-in display, 128K of memory (enough for eight files of 64 pages each), a built-in spelling checker, and ADB ports so you can take your keyboard on the road, do your writing, and then come back and dump it into your Mac. Best of all, long after her laptop has run out of power, you'll be typing along happily for another 300 hours—that's what the keyboard's power source, three AA batteries, is rated at. Besides, typing is all a laptop is good for, right? That and riding in a bicycle basket. Contact Intelligent Peripheral Devices at 888-274-0680 or <http://www.alphasmart.com>.—DR



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Diamond Pro 1010e	0.26 mm	1800 x 1440/76 Hz NI	H: 30-115 kHz V: 50-152 Hz
Diamond Pro 1000	0.28 mm	1800 x 1440/76 Hz NI	H: 30-115 kHz V: 50-152 Hz

* DVI: Diagonal Viewable Image. Resolution refers to maximum addressable resolution H x V.

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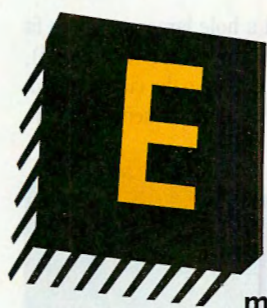
void

Void Your War

10 dubious hardware hacks
that will forever keep you from
getting service on your Mac

Warranty!

by David Reynolds



Every true Mac addict has felt the urge—that irresistible **temptation** not to leave well enough alone. Add a few shareware extensions here, maybe some fonts there, and all of a sudden you can't imagine life without metal-studded menu bars. All innocent fun, until you discover the **dark pleasures** of code hacking with ResEdit. Lured by its powerful siren song, you add key commands to your favorite applications and maniacally begin to manipulate code. Thrilling work, but when the excitement of changing Finder resources on the fly wanes, where do Mac addicts with **danger** in their hearts turn for the next big rush? The dreaded hardware hack. And that's where we come in.

Submitted for your approval, here are 10 of the most forbidding, fear-inducing, disaster-defying ways to void your Mac's warranty. The techniques that we show you on the following pages are not for the faint of heart. You could **destroy** your Mac. You could give yourself an electrical shock. You may even get a little dirty. If you do, don't call us. We take no responsibility for any harm that may befall you or your Mac should you actually **dare** to try any of these high-risk hacks. We will not provide technical support if something goes wrong, and we won't even feel bad. Now that **you've been warned**, it's time to take danger for a ride.

THE DANGERS!

The hacks in this article can damage your Mac in a variety of ways. Here's a list:

■ **Soldering**—Soldering items on a circuit board can cause heat damage to sensitive electrical components. The heat can also loosen solder connections on other components, even at a level that's too small to see; although things may look fine to the naked eye, some components may be making intermittent contact, which will cause some *really* odd problems. Also, if solder runs on the board and shorts—or bridges—the area between two contacts or two circuit tracings, you'll have a short circuit that will cause major headaches. Learn how to solder properly before working on a Mac circuit board, and be sure to use appropriate solder, such as rosin-core solder. Check <http://mechatronics.me.vt.edu/vt84construction/notesonsoldering.html> for more information.

■ **Static Electricity**—Anytime static electricity enters a circuit board (or any other delicate electrical components), that electric charge can irrevocably fry circuits—just like that. Always wear a static strip when doing anything involving your Mac's electronics.

■ **Scratches**—Circuit tracings are delicate, and if you scrape them (say, accidentally with a screwdriver), you can damage them. The lesson here—don't touch the motherboard with your tools.

■ **Heat**—The heat from a soldering iron or from components running beyond their design limits can damage other components. Always be careful of soldering heat, and if you're experimenting with high processor speeds, don't go straight for the highest possible speed. Keep your macho side in check by starting low and working up rather than the other way around.

■ **Electrical mismatches**—So you added a floppy drive socket to your iMac, but you reversed the socket by mistake. When you plugged the floppy drive in, the current went through the wrong circuit and fried the drive—or the motherboard. Oops. In other words, when adding components onto the motherboard, be very sure everything matches up and the connectors and sockets aren't turned 180 degrees around.

void



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Hacking the iMac

Light Up Your Mouse

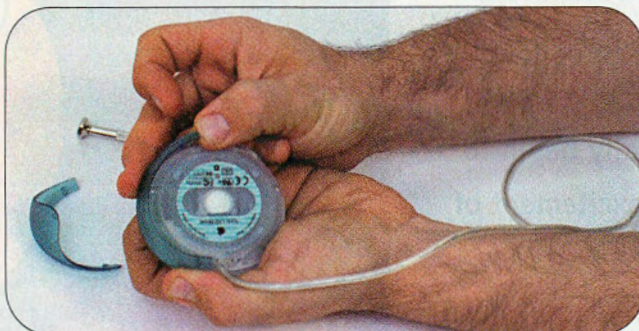
The Hack: Make your iMac's mouse light up from the inside—as shown in the iMac promotional video.

Why It Works: When you solder an LED (light-emitting diode) onto the iMac mouse's circuit board, the LED draws power from the iMac and lights up.

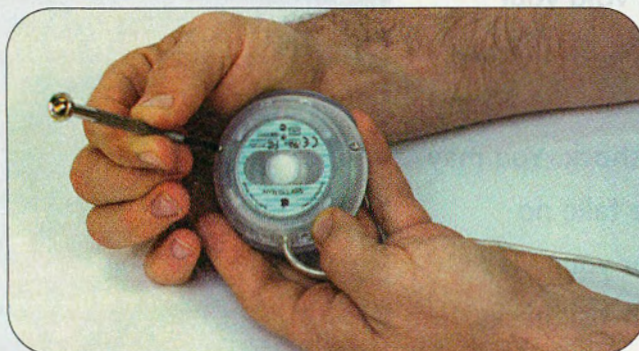
How to Do It: Scrounge up a soldering iron and solder suitable for small electronics, a blue 5V LED (available from electronics supply stores—Radio Shack part number #276-311), a small flat-head screwdriver, and a small Phillips screwdriver.



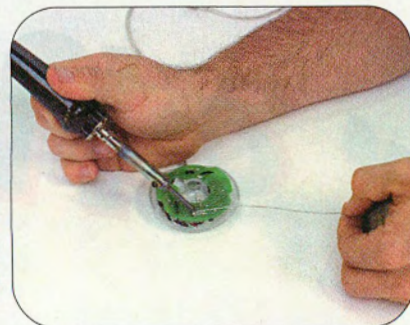
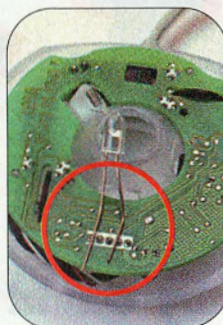
Disconnect your iMac's mouse from the USB port, then remove the mouse ball cover and the mouse ball. With the small flat-head screwdriver, carefully pry the blue plastic trim around the mouse away from the mouse body. Remove the trim pieces from the mouse.



With the Phillips screwdriver, remove the two screws on the sides of the mouse. Separate the top and bottom halves to expose the iMac mouse's circuit board. This isn't easy, as there are two plastic clasps that will fight to keep the mouse together.



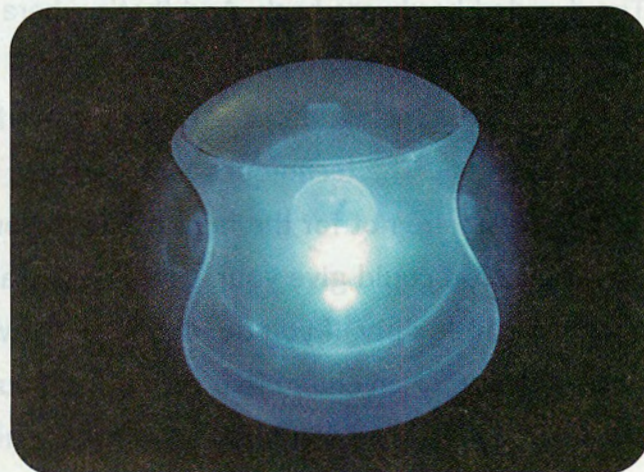
Locate the soldered connection pins where the mouse cable meets the circuit board. Solder the negative terminal on the LED to pin 4 (on the right side), and the positive terminal on the LED to pin 1 (on the left side). The longer of the two is the positive terminal in our case, but that's not always true. Better ask the salesperson when you buy the LED.



For a more diffused lighting effect, drill a hole large enough to fit the LED (locate it near the pins on the iMac mouse's circuit board), insert the LED into the hole, then solder the LED onto the circuit board. This also lets you see the bicolor mouse ball spinning when you roll it.



Reassemble the mouse and plug it into the iMac. Your mouse should light up when you turn on the computer. This hack was first shown by Chris Geiger; you can see the results of his soldering work at <http://www.ic.ucsb.edu/~geiger/mouselight>.



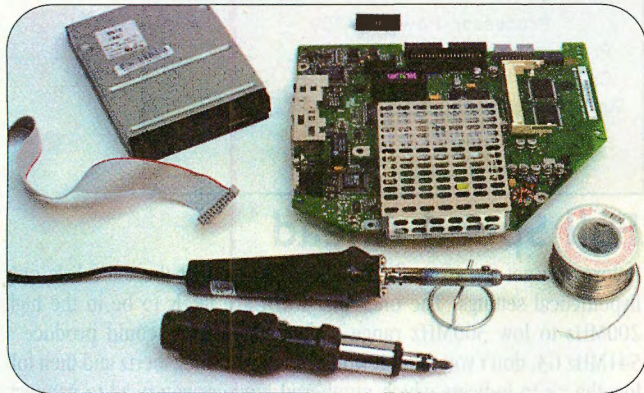
WARNING: This may void your iMac's warranty, and it will certainly void your iMac mouse's warranty. However, if something does go wrong and you need to take your iMac in for service, you can just replace the mouse with one that isn't modified, and odds are no one will know (but check your ethics). Also, by drawing power from the iMac's USB connection, you may cause some problems with other USB devices or with the iMac's USB controller—after all, they're expecting a certain amount of power from regulated devices, not from some light bulb soldered to a circuit board.

Break the Floppy Barrier

The Hack: Attach a non-USB floppy drive to your iMac.

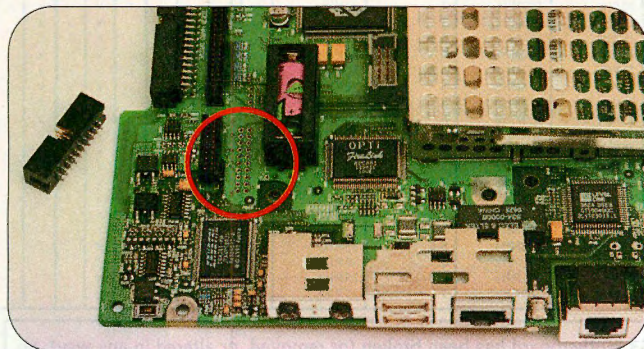
Why It Works: The iMac already has all of the built-in hardware to handle a floppy drive except for the drive itself—and the floppy drive connector. So, when you fill the slot on the motherboard with a floppy drive connector, it works. The iMac supplies the power and loads the proper drivers all by itself. Sure, you could always buy a USB floppy, but then you wouldn't get the benefit of such things as Linux on your iMac. (At press time, USB drivers were unavailable for the Linux operating system.) Plus, if you have a Mac SuperDrive lying around you're just out the cost of some solder, a connector, and a ribbon cable. In fact, Corporate Systems Center (<http://www.imac-floppy.com>) sells a complete kit (including the drive) for \$49. A USB SuperDisk drive from Imation (<http://www.imation.com>) would cost you more than \$150.

How to Do It: Round up a soldering iron and solder suitable for small electronics, a 20-pin floppy socket connector (also called a 20-pin boxed header), a standard Macintosh SuperDrive floppy drive, a 20-pin flat ribbon cable that's at least 12 inches long, and a Phillips screwdriver. You can find all of these items at your local computer parts store.

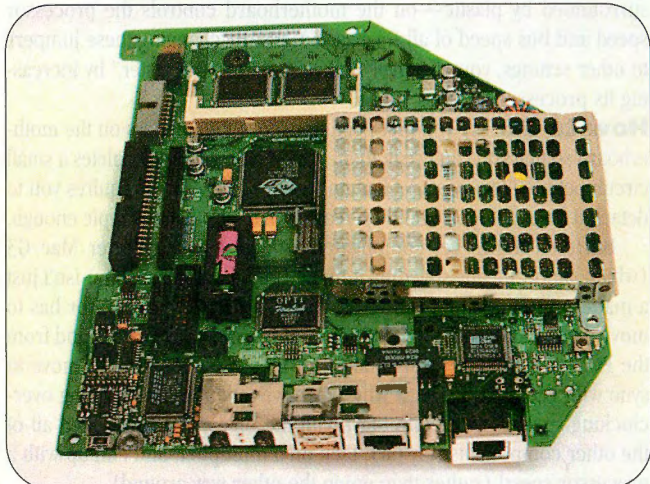


Pull the main board out of your iMac and put it on a static-free surface. To do this, turn off the iMac, remove the single Phillips screw at the bottom back, and pull off the bottom panel. Next, unplug the cables from the metal box and remove the screws holding the cables in place. Remove the two screws in the plastic casing (next to the first screw you removed), and pull the motherboard (and its attached components) out of the iMac. Finally, remove the screws that hold the motherboard onto the bottom of the case, and gently rock the motherboard until it unplugs from the power connector on its bottom.

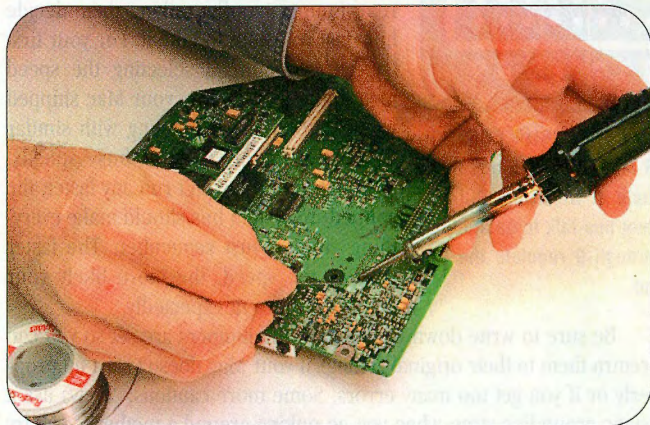
Locate the socket on the motherboard for the floppy drive. You'll find it between the audio connector socket and the PRAM battery, and it should be labeled FD12 on the board.



Insert the connector into the socket. Make sure that hole 1 on the socket matches pin 1 on the connector, or the drive won't work.



Solder the connector into place on the motherboard. If you don't know how to solder small electronics, find someone who does and bribe them to help you out—this is a delicate operation. Let the solder cool.



Plug the 20-pin flat cable into the newly soldered socket. Reassemble your iMac, running the cable out of the side of the case. Plug the other end into the floppy drive (painted a nice Bondi blue, if you like), fire up your Mac, and take your new drive for a test ride.



WARNING: By flouting the new USB regime, you void your iMac's warranty. Anytime you solder connections on a circuit board, you risk overheating some of the circuits or otherwise damaging components, circuit tracings, or other solder points (through scrapes, static discharge, or solder bridging). No Apple service rep will touch a soldered motherboard with a 10-foot pole, so don't expect service if anything goes wrong.

void

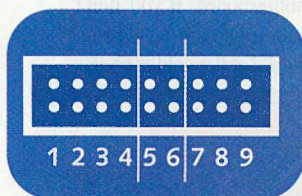
Jump Your G3

The Hack: Make your G3 Mac run faster by bumping up the processor and bus speeds. Credit for this hack is generally given to Takashi Imai. Check it out at <http://www.bekkoame.or.jp/~t-imai>.

Why It Works: A set of jumper switches—little bits of copper surrounded by plastic—on the motherboard controls the processor speed and bus speed of all G3-based Macs. By changing these jumpers to other settings, you effectively tell your G3 to “run faster” by increasing its processor and bus speed.

How to Do It: You first need to expose the jumpers on the motherboard so that you can tweak them. (A jumper switch completes a small circuit between two posts.) Changing a jumper's settings requires you to detach it from one post and then reattach it to another—simple enough.

But then things get complicated. Overclocking a Power Mac G3 (which simply means speeding it up beyond its rated capacity) isn't just a matter of telling the G3 processor to go faster. The processor has to move data to and from memory across the system bus (and to and from the PCI bus), which means that all of those systems have to move in sync with each other. That's why, when we talk about calculating overclocking speeds, we usually start with the bus speed (the speed all of the other components rely on), tack on a multiplier, and end up with a processor speed (rather than going the other way around).



JUMPERS 1 THROUGH 4 CONTROL THE BUS MULTIPLIER, 5 and 6 set the multiple at which the PCI bus and system bus talk to each other, and 7 through 9 regulate the PCI bus speed.

To overclock a Power Mac G3, just compare your Mac's jumpers to the table below at right. Look for your Mac's current jumper configuration, then decide how fast you want to take it. For your first try, we recommend selecting the speed next highest to the one your Mac shipped with. Also try experimenting with similar CPU speeds at higher bus speeds. Although the CPU won't run any faster, the souped-up system bus should make everything zippier. Just remember: The faster you set the speed, the more likely your Mac will freeze unexpectedly.

Be sure to write down exactly how the jumpers are set so you can return them to their original settings if your Mac doesn't start up properly or if you get too many errors. Some more cautions: Always use a static grounding strap when you go poking around a motherboard, try not to touch exposed metal contacts or components, and don't blow on the board (or use a vacuum) to get dust off the motherboard—use compressed air instead. Trust us.

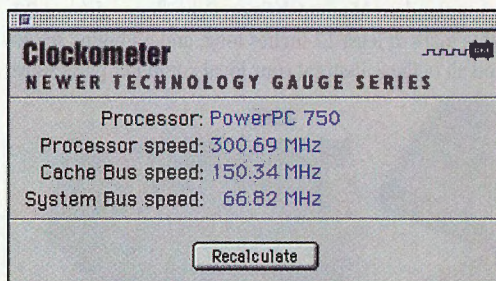
Open up the G3's case. It's easy. On minitowers, just press the green button on the tower; on desktops, press the two buttons under the front lip of the bezel and pull up. Locate the set of nine jumpers labeled J16, which you'll find hiding out near the PRAM battery and the PCI slots. These jumper contacts control the CPU speed, bus speed, PCI bus speed, and memory controller.



Carefully remove the all-in-one jumper from the 18-pin connector with a flat-head screwdriver. Select your new speed from the table (choose from four different bus speeds), and reattach the jumper to the appropriate post using the jumper settings on the table as a guide. Remember—the numeral 1 printed on the motherboard is close to jumper pin 1.



Close things up and restart. If your Mac doesn't start up, you've exceeded your speed limits. Step things down a bit and see what happens. Check the new settings to see that your Mac is running at a faster speed, and you're ready to rock—that is, if your Mac is stable.



Full Speed Ahead

Before you get too excited, you should know that the table lists only hypothetical settings. The ones that work are likely to be in the high 200MHz to low 300MHz range—after all, if Apple could produce a 541MHz G3, don't you think it would? Pick your megahertz and then follow the x's to indicate which numbered jumpers you need to connect. Speed freaks beware: The higher you go, the greater the danger.

Bus Speed	CPU Speed	Multiplier	PCI Speed	1	2	3	4	5	6	7	8	9
66MHz	200MHz	3	33MHz		x	x	x	x	x	x		
66MHz	233MHz	3.5	33MHz				x	x	x	x		
66MHz	266MHz	4	33MHz		x			x	x	x		
66MHz	300MHz	4.5	33MHz	x				x	x	x		
66MHz	333MHz	5	33MHz		x			x	x	x		
66MHz	366MHz	5.5	33MHz		x	x		x	x	x		
66MHz	400MHz	6	33MHz			x		x	x	x		
66MHz	433MHz	6.5	33MHz	x		x		x	x	x		
66MHz	466MHz	7	33MHz	x	x			x	x	x		
70MHz	210MHz	3	35MHz		x	x	x	x	x		x	x
70MHz	245MHz	3.5	35MHz				x	x	x		x	x
70MHz	280MHz	4	35MHz		x			x	x		x	x
70MHz	315MHz	4.5	35MHz	x				x	x		x	x
70MHz	350MHz	5	35MHz		x			x	x		x	x
70MHz	385MHz	5.5	35MHz		x	x		x	x		x	x
70MHz	420MHz	6	35MHz			x		x	x		x	x
70MHz	455MHz	6.5	35MHz	x		x		x	x		x	x
70MHz	490MHz	7	35MHz	x	x			x	x		x	x
75MHz	225MHz	3	30MHz		x	x	x		x	x		
75MHz	263MHz	3.5	30MHz				x		x	x		
75MHz	300MHz	4	30MHz		x			x	x	x		
75MHz	337MHz	4.5	30MHz	x				x	x	x		
75MHz	375MHz	5	30MHz		x			x	x	x		
75MHz	413MHz	5.5	30MHz		x	x		x	x	x		
75MHz	450MHz	6	30MHz			x		x	x	x		
75MHz	487MHz	6.5	30MHz	x		x		x	x	x		
75MHz	525MHz	7	30MHz	x	x			x	x	x		
83MHz	250MHz	3	33MHz		x	x	x		x			
83MHz	292MHz	3.5	33MHz				x		x			
83MHz	333MHz	4	33MHz		x			x				
83MHz	375MHz	4.5	33MHz	x				x				
83MHz	416MHz	5	33MHz		x			x				
83MHz	458MHz	5.5	33MHz			x		x				
83MHz	500MHz	6	33MHz			x		x				
83MHz	541MHz	6.5	33MHz	x		x		x				
83MHz	583MHz	7	33MHz	x	x			x				

WARNING: If the sealing label over the jumpers on any Power Mac G3 motherboard has been broken (or removed, or altered in any way), no Apple service provider will repair that Mac—even if the repair has nothing to do with the motherboard. Also, accelerating your Mac's clock speed can make it unstable, as it puts additional strain on all other motherboard components. Although returning the jumpers to their original settings should restore your Mac to normal, by increasing the bus speed you exceed your Mac's design speeds. When you start getting unexplained errors and lose vital data because you cranked your Mac's speed up to 541MHz, don't come crying to us.

Break Out of Thinking Jail

The Hack: Paint your beige Mac red...or Bondi blue...or puke green—whatever floats your boat.

Why It Works: It's paint—duh!

How to Do It: You need a drop cloth, a Mac, several colors of spray or canned paint, brushes, masking tape, and lots of patience. Don't even ask us for the Mac. We don't care how many of our typos you catch.

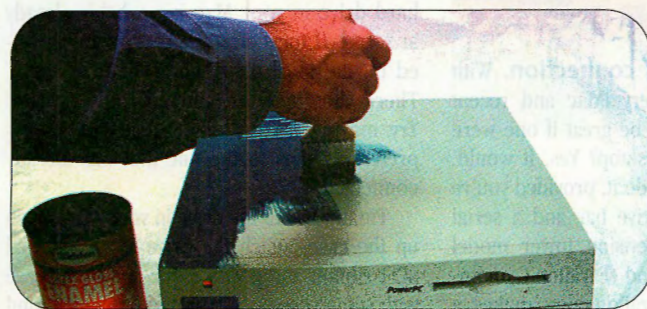
Choose a color scheme for your Mac. You can go with a solid color, racing stripes, or even a scene of some sort. Figure out what colors you need for your design, and mosey on up to the store for some paint. Choose a durable enamel if you can find it, one that's suitable for plastics and metal.



Remove your Mac's case and take out any other parts (such as drive bay bezels) that you want to paint. Clean them thoroughly with soap and water, letting them dry completely. If you really want to be sure that the paint will stick, sand the case lightly with fine-grit sandpaper before washing it.



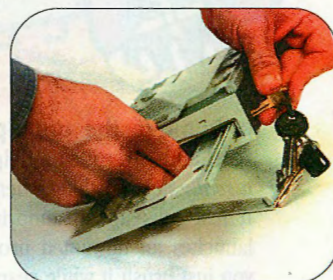
Start by giving your parts a base coat. With even strokes, brush or spray the case completely with the color you've chosen as your base. For example, if you're going to paint an ocean scene, you'll probably want to use an ocean-blue color as your base, then paint sand, rocks, seaweed, and fish on top of the base coat.



Wait for the base coat to dry. If necessary, give your Mac a second coat and wait for that to dry. After the base coat is completely dry, start adding the next layers. For racing stripes, mask off the areas where the stripe won't be, then paint the stripe. For an interesting abstract design, moisten a rag with paint and smudge it on strategic spots on the case. For more intricate designs (such as fish), whip out the paint brushes, dip them into some canned enamel paints, and start detailing.



Painting CD-ROM drives gets a little more complicated. First, remove the CD-ROM drive and pull off the facings. Partially open the drive with a paper clip, then remove the tray facing. Next, remove the front facing by pressing the releases and pulling. Finally, paint the facings and let them dry.



Let the paint dry completely before handling the case or parts—otherwise you run the risk of scratching or scuffing your brand-new paint job. Finally, reassemble your newly painted Mac, and you're good to go.



WARNING: Although painting a case doesn't directly impact your Mac's electronics, some things can go wrong. Anytime you open your Mac's case, you risk damaging components inside. Also, although most paints are safe, sometimes paint can affect plastics in ways you can't predict—softening the material or making it brittle, for example. Finally, even we aren't brave (or stupid) enough to paint a monitor. Aside from damaging delicate electronics, you risk having the picture tube implode (ouch), or sending tens of thousands of volts through your body if you touch the wrong component—even if the monitor has been unplugged. Paint your monitor, and we'll see you at the funeral—you just won't see us.

void

Other Skanky Hardware Hacks We Fear

■ **Add a fan.** One of the reasons overclocked G3s lock up is that they overheat. You can cool down your CPU by adding a fan to your G3 (or other overclocked component). Just buy a simple fan at Radio Shack (or other electronics supply house), but be sure to match the fan's power requirements to those the G3 provides, or you'll have to use an external power supply for the fan. The Accelerate Your Mac Web site (<http://www.xlr8yourmac.com/G3-ZONE/cooling/index.html>) has a complete tutorial on how to keep your CPU cool.



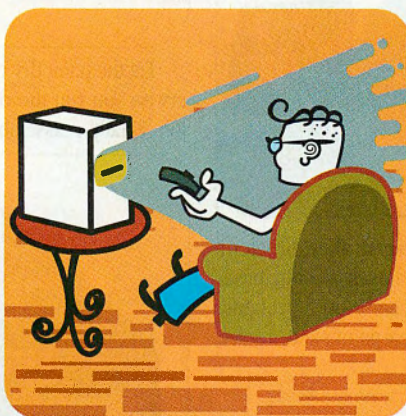
■ **Remove the unhelpful Help button.** Sure, it's called a Help button, but does it *really* help anything when you press it? No. It just calls up an annoying dialog box or launches an unwanted program, even when you just brush it while searching for a different key. Rob Capps has come up with an elegant—and warranty-breaking—solution. Just jam a pen under the Help key, pry it up until the key comes off, and put it in a safe place. To undo the hack, just press the key back onto the nubbin until it clicks into place.



■ **Craft a custom case.** If you're really daring, you can make a custom case for your Mac—perhaps out of mahogany, stainless steel, or even clear lucite. To embark on this quest, first choose your custom case, then disassemble your Mac. Document how things

come apart so you can put them back together. Remount the motherboard in your new enclosure, then add the various components (power supply, floppy, hard drive, CD-ROM, and so on). Be sure to mount these components solidly—especially the hard drive and the power supply.

■ **Put a TV into your tower case.** OK, so you *could* just buy a portable TV, but where's the fun in that? Now that we've cleared that up, run out and buy yourself a portable TV with between a 3-inch and 5-inch viewing area. Next, resign yourself to the fact that you'll have to sacrifice a couple of your Mac's drive bays. Pull off your Mac's front bezels below the CD-ROM drive (there should be a couple), remove the dividing tray, and place the television on the racks in the open bay. Using some stiff wire, secure the television in place so that it doesn't accidentally slide into your Mac's open case. Open up one of the free PCI slot blockers and run the television's power cable through the Mac's case and out the back. You'll also need to run an antenna cable through this same route. Finally, make a custom bezel out of some sheet plastic painted beige to fit the front face of the television—make sure the power switch and television controls are accessible. Now plug the TV into the wall, attach the antenna, and you're golden.



■ **Make a wireless connection.** With an infrared port in every iMac and recent PowerBook, wouldn't it be great if one were built into every Mac desktop? Yes, it would. And here's how you can do it, provided you're willing to sacrifice a drive bay and a serial port. Following the television tower model above, buy an infrared pod (Farallon Communications, <http://www.farallon.com>, makes a nice unit called the AirDock for about \$70). Remove the bezel from one of your front drive bays, and use a pen to trace where you'd like the infrared pod's window to be. Using a drill and a scroll saw (or any other saw that gives

you fine blade control), drill a hole in the bezel and cut out a larger hole for the infrared pod's transceiver. Smooth the edges with some fine-grit sandpaper, and then affix the infrared pod to the bezel using quick-drying epoxy. Make sure that the transceiver window shows through the bezel and that no glue gets on the window. Run the infrared pod's cables through the Mac's case and out the back through one of the unoccupied PCI slots. You'll need to remove one of the slot blockers to do this. Plug the infrared pod into the Mac's ADB port and one of its serial ports, then snap the bezel with the infrared pod into place. You now have a Mac with an infrared port.

■ **Bring your external drive in from the cold.** So you went ahead and bought that external hard drive, thinking you'd find space *somewhere* on your overcluttered desk, only to discover that you were wrong. There's no space to be had. Zero. Zip. Rather than throwing out the hard drive (as if), you can remove the hard drive from its case and put it in your Mac's case—provided your Mac has a free drive bay.

First, undo the screws that hold the external hard drive's case together. This will void the hard drive's warranty, so once you've done this, don't go looking for technical support. Pull the case apart, unscrew the screws holding the hard drive to the internal case (usually a metal cagelike affair), and unplug all of the cables going into the drive. You'll end up with a lonely little metal box—perfect for inserting inside a Mac.

Now for the tricky part. You need to find the SCSI ID jumpers on the circuit board. Since an external circuit controlled the external drive's SCSI ID, you need to set this ID to something other than its current setting. If you've lucked out, the hard drive will have jumper configurations printed on the case, in which case just reconfigure the jumpers to set the SCSI ID (remember, the hard drive in your Mac is probably already at zero). If there aren't any diagrams printed on the hard drive, you'll have to guess. There should be one jumper on the drive. Try moving it to a different set of pins—preferably next to the one that was already connected.

Finally, install the drive in your Mac. Open up the case, attach the drive to the internal SCSI ribbon and power cable and to the case with some screws (many Macs contain a kind of sled that slides in and out), close up shop, and start up your Mac to see what happens.

Editor-in-Chief David Reynolds tried all of the big hacks and is still nursing a solder burn. Pity him.

Storage for the Masses

Compact Disc is the standard media of the business desktop with over 300 million CD-ROM drives in homes and offices worldwide. Now, Yamaha makes CD's mass appeal even more appealing to business — by making CDs ReWritable. Yamaha CD ReWritable drives give you the capacity to record up to 650Mb of video, audio or data on a single CD-RW disc — and the flexibility to erase and rewrite



any part of the disc for revisions and backups. The same CD-RW drive also records CD-R write-once discs that every CD-ROM drive can read. It speed-reads all standard CD formats. And it performs like a Yamaha—the standard of quality in CD recording accuracy and reliability. Let Yamaha CD-RW drives be your business standard. Visit our Web site for a dealer near you.

ReWriting the Future



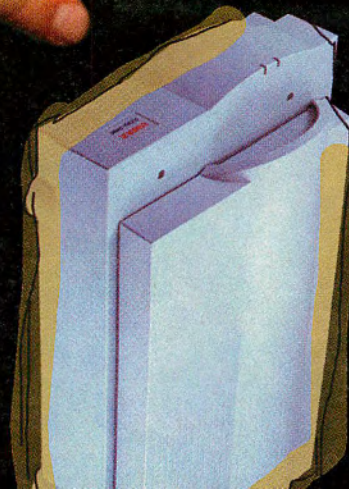
YAMAHA®

www.yamahayst.com



fake ID

CAN YOU MAKE A



FAKE ID?

fake ID

Today's cheap yet effective peripherals put awesome power in your hands. Power that could be used for good... or evil. So we checked out the latter!*

*MacAddict does not endorse or condone making or using fake IDs. This is just for fun and information. As always, we suggest you get real and just be yourself.

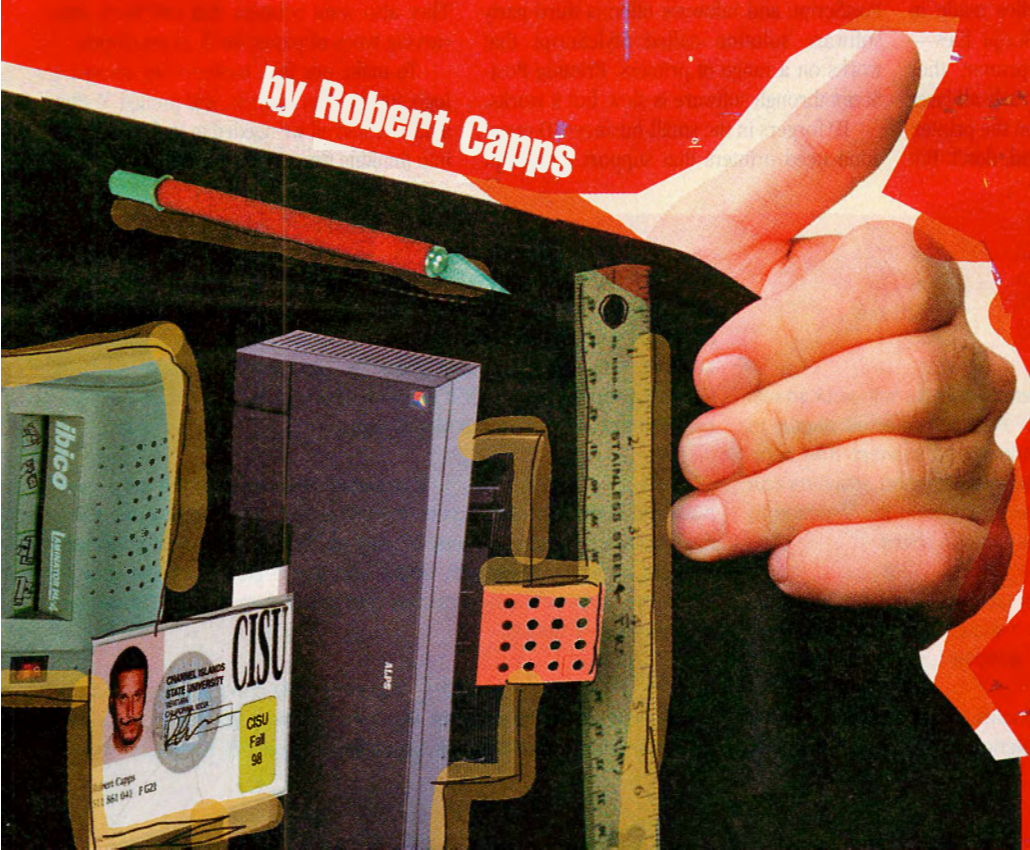
by Robert Capps

Everybody knows the Mac is the tool of choice for professional designers. But there is another, less professional artist who can also take advantage of the Mac's superior graphics abilities, raw power, and efficient interface—the con artist. Combine a Mac with the right printer, the right scanner, and the wrong user, and you've got a veritable counterfeiting machine.

An increase in performance among reasonably priced printers and scanners has made it cheaper than ever for ne'er-do-wells to get away with forging identities. In the interest of research, we went undercover to find out just how easy it is to make a fake ID. We discovered that a savvy outlaw could pick up a printer and scanner combo capable of mimicking the complex designs found on an ID for as little as \$500. These devices still can't create security safeguards such as holograms and magnetic strips, but the artwork replication quality is stunning.

We also discovered that the graphics techniques used to make these IDs are actually shockingly easy. In a few minutes, even a relative novice can learn to mesh text, photos, and a logo into an expert composition.

Read on as we show you step by step how simple it is to make a fake ID. We also rate the current offerings of sub \$1,000 printers and scanners on their sleaze of use. Just don't try this at home. You could go to jail, get sued, or—worse still—possibly wind up with an identity crisis.



The INDUSTRY outsider

The right stationery, the wrong job

FRAUD FORMAT: BUSINESS CARDS, LETTERHEAD

CHARACTERISTICS	Logo, black and white (color optional), no photography
POSSIBLE USES	Obtain the key to the executive washroom

The maker of fake business cards, letterhead, and envelopes looks like a legitimate businessman. He's not. He didn't kiss up to the boss while slaving away as an intern. He didn't work nights and weekends to get ahead. All he had to do was whip up a company logo, print up a business card, and he was, well, in business.

Business cards and letterhead are the simplest IDs to fake, not to mention the least likely to land the creator behind bars. You don't need to reproduce any photos, and you can settle for something in black and white. But you do need a logo and type, which means ponying up for an illustration program—Adobe Illustrator or Macromedia Freehand, for example. You also need a printer that can handle PostScript.

For those unskilled in graphics speak, PostScript is a page description language for printers—it lets them know where elements go and what they look like. Files made in Illustrator are by default PostScript files—printed to a non-PostScript printer, they come out jaggy and muddled. Nearly all laser printers support PostScript within the printer. Inkjet printers, on the other hand, don't. But

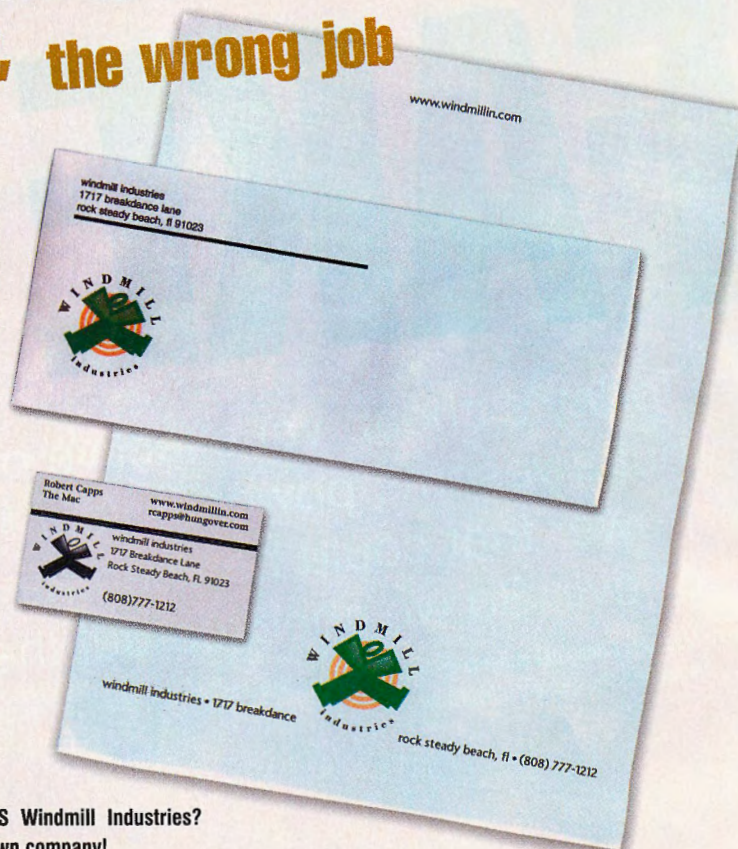
WHAT IS THIS Windmill Industries?
It's our very own company!

for people willing to shell out some additional cash, both Epson and Alps offer software that enables their printers to handle PostScript, and Infowave offers a third-party software solution called StyleScript that works on a range of printers. Printing PostScript through software is slow, but it works.

ID forgers in the small-business ID operation need printers that support PostScript

and can quickly print out multiple copies of letterhead and business cards so they can put their business logo on mass mailings. They also want printers that can work with varying types of paper, such as envelopes.

To make our fake business, we created a logo, invented an address, and printed. Within a day, we had all we needed to fool our friends into thinking we were corporate bigwigs.



Top 5 scanner buying tips

1 Weigh Web Versus Print Determine what you'll do with your scans. If you just want to put up images on your Web site or email photos to friends, you don't need a 240,000-dpi interpolated scanner. The computer screen shows images at 72 dpi, and even low-end scanners can easily outclass this resolution. If you're scanning with the intention to print, however, you need all the resolution you can afford.

2 Ask About Transparency Scanning from a transparent medium such as a slide or negative will greatly enhance the quality of your scan. Most scanners offer some sort of transparency adapter for an extra fee.

3 Look at the Software Bundle Companies target their scanners at clichéd archetypes: This scanner is designed for the artist-designer,

business professional...and so forth. They include software based on this notion. Look at the bundles and see if you might benefit from the package. If you need to pull text from a document, see if you can find a scanner with a good optical character recognition program such as Caere's OmniPage Pro. Or if you're into computer art and you already own Photoshop, opt for the MetaCreations Painter bundle instead.

4 Do Your Own Test Scan If possible, hike down to the local computer mart with a photograph to scan. This will introduce you to a scanner's software, which you may or may not like. Pick a photograph with a bright area, shadows with detail, and some sort of middle gray to judge the scanner's range quickly and make sure it doesn't blow out bright and dark details.

5 Check Out the Bed Size You obviously can't scan legal documents on a letter-size scanner. But if the last time you saw a legal-size document was the mid-sixties, you shouldn't pay for the extra inches.

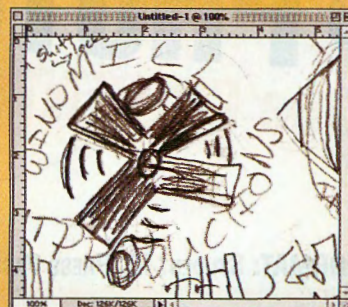
BEING THE MAN 101

See for yourself how easy it is to make the most basic element of an ID—the logo.



Step 1. Pencil the Stencil

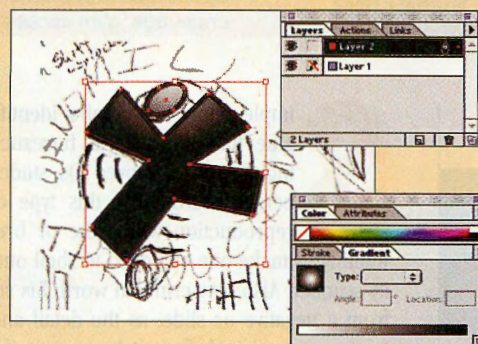
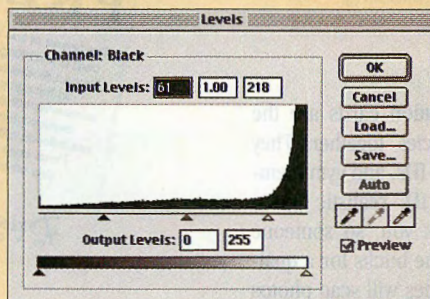
Start by sketching a design on a piece of paper. If you're replicating one, find an original to copy. Set your scanner to Grayscale and scan the design. (You can choose the bitmap option instead, which makes your image pure black and pure white, but be aware that bitmap scans often miss subtleties in a sketch.) Set your resolution to 72 dpi, as you will use this scan only as a guide on your computer, and 72 dpi is the max your monitor can display (this is also true if you scan things for the Web). All scanner drives give you the option of adjusting color, brightness, and contrast before you scan; however, you'll get better results if you make these corrections in Photoshop, so accept the scanner's auto settings.



fake ID

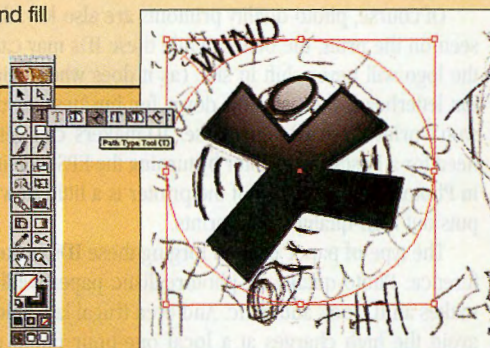
Step 2. Lift the TIFF

Once you complete the scan and open the image in Photoshop, select Adjust Levels from the Image menu. In the Levels dialog box that pops up, drag the white triangle and black triangle slightly closer together to sharpen your image. Save the image as a TIFF file, then open it in Illustrator. In Illustrator, create a new layer from the Layer palette and make the original sketch layer uneditable by clicking the pencil icon next to its layer in the Layer palette. You can then turn the sketch layer on and off by clicking its eye icon in the Layers palette. Use the Pen tool to copy your sketch on the new layer, and fill and color as needed.



Step 3. Curve the Word

To create text circling your logo, use Illustrator's Path Type tool. First, draw a circle around your logo, then click the circle with the Path Type tool (found in the Type tool's pop-up options). Type along the circle. Position the type along the top of the logo with a combination of leading, font size adjustments, and space adjustments (you'll find these adjustments in the Character palette, which you can activate from the Type menu); and the Rotate tool on the Tool palette.



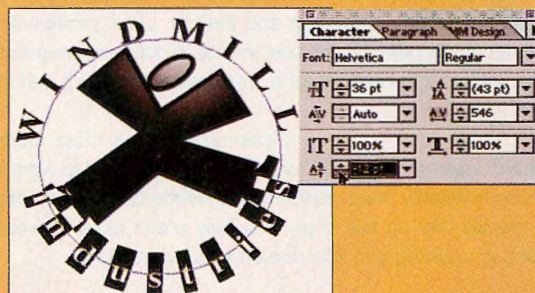
Step 4. Flex the Text

To place type along the bottom of the logo, copy the circle with your type on the top of it, then paste a copy of it directly over the original (you may need to reposition it a bit). Delete the type that you copied with the circle, then select the Path Type tool and type in the text you want to go along the bottom (it will overlap the text of the original circle at this point). Select the Direct Selection tool (the empty arrow) from the Tool palette and with it click on the new text. Along with the circle outline, you can see a blue cursor line at the beginning of the text. Grab this cursor with the Direct Selection tool and drag down and toward the middle. The type will flip.



Step 5. Redefine the Baseline

At this point your type is almost in place, but the text on the bottom of the image is out of alignment with the text on the top. To fix this, you need to shift the baseline of the bottom text. Highlight the text with the Type tool, open the Character palette, and click the down arrow on the Baseline Shift control. This slowly lowers the type relative to the line it is on—in this case, the circle. After you've positioned the bottom text relative to the circle path, adjust its placing using leading, spaces, and the Rotate tool.



The PHOTO PILFERER

All the CREDENTIALS he'll ever need

FRAUD FORMAT: STUDENT ID, PRESS PASS, DRIVER'S LICENSE

CHARACTERISTICS	Color, photograph, logo
POSSIBLE USES	Discounted movie tickets, gambling under age, gym access

Simple photo-text-combo identification cards are the glue that holds local bureaucracies together. They include our employee IDs, student IDs, and gym membership cards. For this type of ID, realistic photo reproduction will make or break you, so someone wanting to make one will need to shell out the bucks for a quality scanner. Also, any criminal worth his stripes will scan photos from a negative or slide, as the detail and quality gained from transparent originals far outshines scans from a print.

Of course, photo-quality printouts are also key; the fewer dots seen on the print, the better. While these IDs may call for a logo, the logo will never shift in size (as it does when being blown up for letterhead, then shrunk down for business cards), and you won't print these IDs en masse. ID makers can get around the need for a PostScript printer by turning the EPS logo into an image in Photoshop. And it's OK if the printer is a little slow as long as it puts out high-quality photo prints.

The type of paper used in forging these IDs makes all the difference. Photo-quality or photorealistic paper, while expensive, makes an ID look authentic. And even frugal law-abiding folk can avoid the high charges at a local one-hour photo development store by printing out all their legitimate pics from home without much of a difference in quality.



A MAC AND A HIGH-QUALITY, low-cost printer and scanner combo can be tools of corruption in the wrong hands.

Top 5 printer buying tips

1 Know Your Printer Types If you mostly print out word processing documents, don't waste your cash on an Alps dye-sublimation printer. It will be slow, expensive, and run out of black ink often. These printers are best suited for photographers and their ilk. Laser printers likewise cost too much for standard home use. Inkjets, in contrast, are good all-around home printers, but use one for a small office and you'll wait for days.

2 Go for Native Mac Support Certain companies, most notably Hewlett-Packard, insist on selling PC printers they've hacked to work with a Mac. Patches inevitably mean performance degradation, especially in speed. Companies that do this imply that they aren't really interested in supporting you, giving you little reason to support them.

3 Watch the Cost of Consumables Ink is the hidden printer money incinerator. When heading to a store (or to the Web) to pick up a printer, price an ink refill. Odds are you're going to have to get one someday. Six-color photo printers are great, but those sure run out of ink quickly.

4 Check Your Network Don't overlook network abilities. None of the Epson line support LocalTalk, but several can be given Ethernet ability. Other printers can't network at all.

5 Don't Forget PostScript PostScript in a personal printer is a wonder not to be taken lightly. It makes a printer able to crank out professional artwork from programs such as Adobe Illustrator and Macromedia Freehand. If that doesn't interest you don't worry about it, but an add-on PostScript package is essential to anyone working with graphics.

Anatomy of a FORGED ID

The photo-text combination in the IDs that we use every day is predictable, and for the unscrupulous, easy to reproduce. The desperado simply places a logo, drops in a photo, signs, and laminates. Here are some graphics tricks he might use to perfect his disguise.

MUG SHOT: Most IDs feature a poorly taken photograph against a plain background. A con man can take a similar portrait of himself and scan it in at 300 dpi. (Scans from slides or negatives generally offer more detail if the scanner has a transparency adapter.) He needs to make sure the original photo is larger than the area it needs to occupy. Once he's scanned the image and put it in Photoshop, he sets the image size (under the Image menu) to the size he wants the mug shot to be on the final ID. He then simply copies the entire image and pastes it to a new layer on a main ID file.

LOGO: Logos created and saved as an EPS in Illustrator can be opened in Photoshop and set to 300 dpi. Cropping the file to just the size of his logo, the illicit ID maker adjusts its size in the Image Size dialog box, then copies and pastes it to his ID file. If he wants the text or photo to run across the logo, he lowers the logo's layer opacity from the Layers palette and chooses logo colors that are dull and fairly light.

STICKERS: Many IDs have protruding elements, such as a sticker. A good fake ID maker tries to make his IDs as three-dimensional and realistic as possible. Local computer stores sell inkjet-ready sticker paper.

SCUFFS AND SCRATCHES: The brute beats up his ID. It makes it look more realistic, and helps him blow off steam.

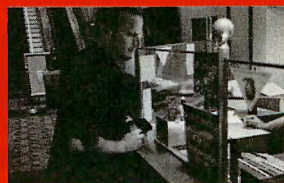
TEXT: Even though Photoshop 5.0 has great text features, Illustrator is still a better program for tweaking type. The fake ID manufacturer types and spaces the text as he wants it in Illustrator, then saves it as an EPS and brings it into Photoshop. He then uses Photoshop's filters (Gaussian Blur, Add Noise) to make the text appear worn (perfectly sharp text would look suspect).

BACKGROUND: The ID maker would most likely assemble his ID in one 300-dpi file in Photoshop, either from a scanned original ID or from a new file slightly larger in width and height than the desired result. If he is starting from a new file, he uses Photoshop's guides (dragging them out from the sides when the rulers are visible) to mark out an area as big as the desired ID. When placing elements on this main file (photo, logo, and text), the con artist saves each item on its own layer for more flexibility in placing and editing items.

Cheap Seats and Rights of Passage

Looking to report the full experience of a fake ID user left me in a bit of a pinch. I'm already 21, so what's left? After turning down a somewhat tempting offer from my editor involving an all-expenses-paid trip to Caracas, Venezuela, sans bail money, I opted for the safer, albeit more staid option of a bargain nighttime movie.

Armed with my self-styled California State University at Channel Island ID (construction of the university should begin anytime now), I headed off with Art Director Ken Bousquet to see the Dreamworks feature *Antz* (*A Bug's Life* wasn't out at the time). Steeling my nerves, I approached the AMC Theatres ticket vendor and confidently ordered one adult and one student ticket. "That will be \$11.75," the kid working the counter muttered. "Don't you want to see my ID?" I asked, frantically foisting the badge upon him. "Nah, it's cool," he replied. Yeah. Real cool.



Sleaze-of-Use Rating

fake ID

Scanners

Astra 1220S, Umax Technologies **Price:** \$179



Contact: 800-562-0311, <http://www.umax.com>
At a mere \$179, the 1220S is the most affordable scanner of the lot. While it produces reliable scans, it suffers a little for precision color and sharpness. Good for Web or screen work.

ScanJet 6100C, Hewlett Packard **Price:** \$799



Contact: 800-752-0900, <http://www.hp.com>
The lone HP scanner is targeted at corporate shells and priced that way. Smart cons won't pay the money when the ScanMaker 4 and Umax 2400S produce better scans for so much less.

Astra 2400S, Umax Technologies **Price:** \$399



Contact: 800-562-0311, <http://www.umax.com>
This scanner produces the sharpest images and best color. The 2400S and ScanMaker 4 are a close match, but the 2400S wallops the ScanMaker 4's price (even if you toss in a transparency adapter).

ScanMaker 4, Microtek **Price:** \$699



Contact: 800-654-4160, <http://www.microtekusa.com>
It's too expensive for low-end scans or Web work. But the ScanMaker 4's innovative transparency bay, consistent color, and great driver make it one of the best scanners we tested.

Perfection 636, Epson America **Price:** \$299



Contact: 800-463-7766, <http://www.epson.com>
It's reasonably priced, compact, and a tad more solid than the Astra 1220S (it uses a standard power cable and comes with an off switch, unlike the 1220S). But it also costs \$100 more.

ScanMaker X6EL, Microtek **Price:** \$249



Contact: 800-654-4160, <http://www.microtekusa.com>
A good budget scanner, the ScanMaker X6EL handles color well and scans quickly. But you can buy equivalent scanners for a little less.

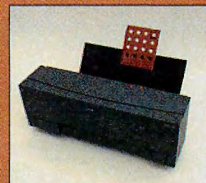
Printers

Stylus Color 740, Epson America **Price:** \$279



Type: Four-color inkjet
Contact: 800-463-7766, <http://www.epson.com>
Epson revved its Micro Piezo print technology for the 740, and it shows. But it's not as smooth as the Epson Photo printers, as it only uses four colors, and it's a bit slower than the 850.

MD-1000, Alps **Price:** \$299



Type: Thermal
Contact: 800-825-2577, <http://www.alpsusa.com>
The Alps MD printers are neither inkjet- nor laser-based. They instead use heat and a ribbon. The MD-1000 prints nice photographs, but it takes forever to do it.

Epson Photo 700 and Photo EX, Epson America **Price:** \$279 for the 700; \$499 for the EX



Type: Six-color inkjet
Contact: 800-463-7766, <http://www.epson.com>
They're the same machine, but the Photo EX prints larger documents and works with Epson's PostScript software. While slow, both are versatile and supply photo-quality prints.

MD-1300, Alps **Price:** \$399



Type: Thermal
Contact: 800-825-2577, <http://www.alpsusa.com>
The MD-1300 is the same as the MD-1000 except it can print in a dye-sublimation mode with special inks. This mode is horribly slow, but it gets you the most photorealistic prints.

LaserJet 6MP, Hewlett Packard **Price:** \$950



Type: Black-and-white laser
Contact: 800-752-0900, <http://www.hp.com>
It's fast, reliable, super sharp, and features native PostScript support. However, it doesn't support color. Great for an office environment if you can afford it.

Stylus Color 850, Epson America **Price:** \$549



Type: Four-color inkjet
Contact: 800-463-7766, <http://www.epson.com>
Epson's fastest inkjet printer suffers diminished quality compared to the Photo and Stylus Color 740 printers. Good for multiuser, small-office use.

After exhaustive testing, we concluded that most of the scanners and printers work all too well for their specific uses. Only one printer and one scanner pairing failed to pass muster—the scanner was too expensive, the printer too slow. Take a look at the breakdown and how each printer-scanner combo can enrich the morally bankrupt.

Robert Capps is glad he's on the right side of the law.

Our Ratings

Home Harmony

The Astra 1220S is a great home scanner. The Epson 740 is a great home printer. They may not be the best choice for making fake IDs, but for everyday Joes, this is the combo.



Busted and Broke

Combine the HP 6100C and the MD-1000 and you get one sad felon. The scanner is too expensive, and the printer is butt slow.



Graphics Generator

Yikes! A morally questionable Mac user paired with this scanner-printer combo is trouble waiting to happen. This pair pumps out photo-quality images at a great price. We hope you can resist the allure!



Graphics Generator

The ScanMaker 4 is one mean scanner, but it's a tad pricey. The Alps MD-1300 produces smooth images, but is painfully slow. The duo works, but at the price of versatility and, well, money.



Business Buy

Epson's scanner may not be the cheapest in its class, but it gets the job done. And for high-quality, solid-performance, black-and-white prints, nothing beats a laser printer.



Business Buy

Microtek's scanner and Epson's 850 printer make for performance beyond just home use, but below professional imaging. Small-office owners will be sitting pretty.



Can
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to your
iMac™?



uConnect™

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Cameras
Printers
Graphic
Tablets



USB to Serial

uConnect is a simple USB to serial adapter that allows you to connect Macintosh serial devices to the new USB ports of the iMac™.

uConnect is the way to connect PDA's, serial Printers, Digital Cameras and Graphic Tablets to the iMac™.

uConnect works seamlessly with your serial devices existing software.

Q



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SoundApp,
Mpecker,
Internet Phone,
and WebFree,
plus the Hotline
Client, Tracker,
and Server
on The Disc.

BY MARK SIMMONS

DISCRETION ADVISED

Their names are spoken in hushed whispers and passed along the seedier sites of the Internet. "Hotline sent me," you tell the suspicious thug at the portal. "Anybody know where I can score some MP3s?" Then you dart a quick look over your shoulder, dreading the relentless pursuit of vindictive copyright holders and industry watchdogs summoned by your invocation of these forbidden terms.

In the computing world, MP3 music files, Hotline bulletin boards, and game emulators are synonymous with piracy and intellectual property theft. These controversial technologies have garnered a bad rap as tools for thieves and bandits, but they are not evil in and of themselves; the crime is in the deed, not the software.

In this article, we show you the tools and teach you the rules of responsible usage. In addition to profiling three infamous technologies and the crimes of which they stand accused, we've compiled a brief copyright primer to help you stick to the straight and narrow. While some morally bankrupt readers may opt to violate copyright law, we are prepared—unlike overzealous industry groups and intellectual-property watchdogs—to extend the confidence that you'll do the right thing with the powerful tools we're placing at your disposal.

ILLUSTRATIONS BY JACK GALLAGHER

MP3 (aka MPEG-1 Audio Layer III)

Hangouts:

MP3.com (<http://www.mp3.com>)

Enemies:

The Recording Industry Association of America

Identifying Marks:

Officially registered as MPEG-1 Audio Layer III, the black sheep of audio file formats is known on the streets as MP3. To recording industry heavy hitters, MP3 is synonymous with music piracy. Technically, however, MP3 is a value-neutral file format similar to the popular WAV and AIFF formats. MP3's near CD-quality and potent compression—a typical MP3 file weighs in at about a megabyte per minute, much less than a traditional audio file of comparable quality—have made this file format a popular means for exchanging music across the Net.

Rap Sheet:

Traditional audio formats yield files that are either too big to distribute online, or too crummy to serve as acceptable substitutes for the original versions, but the MP3 format manages to avoid both pitfalls and has thus made online music piracy feasible.

Perturbed by the ever-growing underground MP3-trading culture, the music industry has begun an antipiracy offensive, spearheaded by the Recording Industry Association of America. In addition to targeting archives of copyright-violating MP3 files, the group has attempted to block the availability of MP3 tools; in October, it unsuccessfully filed suit to prevent the release of Diamond Multimedia's



Rio PMP300 portable MP player. With the availability of the Rio, and a similar device reportedly coming from Samsung, MP3 buffs will be able to transfer music from their desktops to a Walkman-type device for portable listening.

Mitigating Circumstances:

Though MP3 makes it easy to distribute pirated music, that doesn't necessarily mean that all music distributed in this format is pirated. Indeed, many struggling and obscure musicians who would otherwise have difficulty finding an audience have taken to releasing samples of their work in MP3 format; you can find hundreds of legally distributed songs by such lesser-

known musicians at the MP3.com Web site (<http://www.mp3.com>).

Of late, even some big-time musicians have started getting in on the act. While there are a number of industry-sanctioned options for online music distribution—including Headspace's Beatnik (<http://www.headspace.com>), Liquid Audio (<http://www.liquidaudio.com>), and AT&T's a2b (<http://www.a2bmusic.com>)—MP3 has the advantage of being an open standard with free authoring tools and a huge audience. Probably the highest-profile examples of MP3 adoption to date are the Beastie Boys, who recently posted MP3 recordings of their live tour performances at <http://www.beastieboys.com>, and former Pixies frontman Frank Black, who is selling his new virtual album in MP3 format via the GoodNoise Web site (<http://www.goodnoise.com>).

Playing Around with MP3

1 Playing back MP3 files is easy. Though QuickTime doesn't support the format, you can open and play MP3 files with sound utilities such as Norman Franke's freeware SoundPlayer or dedicated MP3 players such as @soft's MacAmp, shown here.

If MacAmp is your MP3 player of choice, you also get bonus features, including a tricked-out display, a customizable interface, and a snazzy playlist of your recently accessed files.



Modus Operandi: CD Activities

1 To create your own MP3 files, you will need a source audio file and an MP3 encoder, such as Rafael W. Luebbert's MPEcker. MPEcker can convert AIFF audio files to the MP3 format, but it doesn't accept audio CD tracks directly.

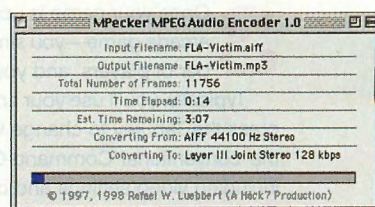
2 If you want to convert a music track from an audio CD, you need to change it from audio CD format to an AIFF file. To do this, just open the track in Apple's MoviePlayer and use the Export command to save it in the new format.



3 Once you have your AIFF file, it's time to fire up MPEcker. You can either add audio files to a batch list for bulk processing, or open and process them one at a time. You then need to set your options: Specify Layer III encoding, select an appropriate bit rate (128 kbps is standard), and choose Stereo Encoding (or Joint Stereo Encoding if you prefer—we couldn't tell any difference).

4 Finally, start your encoding and take a nice long lunch break. Remember—if you buy a CD, you can make MP3 files for your personal amusement, but distributing them would make you a bad person. Very bad. Evil. No friend of ours.

Options	Psy Model	Help
Layer II		
<input checked="" type="checkbox"/> Layer III		
Bit Rate (kbps)		
Mono Encoding		32 kbps
Stereo Encoding		48 kbps
<input checked="" type="checkbox"/> Joint Stereo Encoding		64 kbps
		96 kbps
		112 kbps
Autodelete Encoded Files		<input checked="" type="checkbox"/> 128 kbps
		160 kbps
		256 kbps



MacMAME

Hangouts:

MacMAME.org (<http://www.macmame.org>)

Enemies:

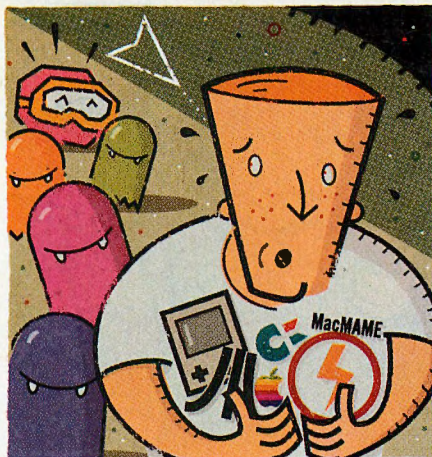
Vendors of long-discontinued '80s arcade games, people who really hated Q*bert

Identifying Marks:

MacMAME is a PowerPC Mac version of the Multi-Arcade Machine Emulator, an ingenious program that simulates various '80s video arcade games. Peruse the emulation .net Web site (<http://www.emulation.net>), and you'll see that emulation is a favorite pastime of geeks, hobbyists, and nostalgia buffs who yearn for the simple charm of the antique TRS-80 and Apple II. Most such emulators are designed to mimic specific home computers or game consoles, such as the Super Nintendo-simulating SNES9X, but MacMAME supports about 500 different arcade machines, from Asteroids to Zektor.

Rap Sheet:

While hardware emulation isn't in and of itself illegal, replicating arcade machines requires a little something extra. The actual game code is stored on a ROM (read-only memory) chip inside the arcade machine, a complex package of code and data you can't replicate without rewriting the program from scratch. Instead, MacMAME simply simulates the arcade machine hardware, then loads a copy of the original game ROM. Tricked into believing it's running on the actual arcade machine, the ROM code executes exactly as it would on the real thing.



The catch, then, is the copying of the ROM. Technically, if you actually owned a remaindered Joust machine, you'd be within your rights to duplicate its ROM code and load it up in MacMAME for your own personal enjoyment. The other 99.99 percent of us have no such excuse. The issue of ROM copyright infringement applies to most of the emulator programs available for the Mac, from Apple II emulators to Gameboy simulators; unlike the other technologies we've profiled in this feature, an emulator program has almost no non-copyright-violating applications.

Mitigating Circumstances:

Emulator buffs might argue that, since

most of the emulated systems have been discontinued and the programs created for them are no longer available, there's no way for Q*bert junkies to play their favorite game legally. While not a winning legal strategy, this point is a valid one; MP3 pirates could always shell out money for music CDs, and software pirates usually have the option of finding their wares on store shelves instead of shady Hotline servers, but you'd have to hit a lot of garage sales before getting your mitts on a Ms. Pac-Man arcade machine.

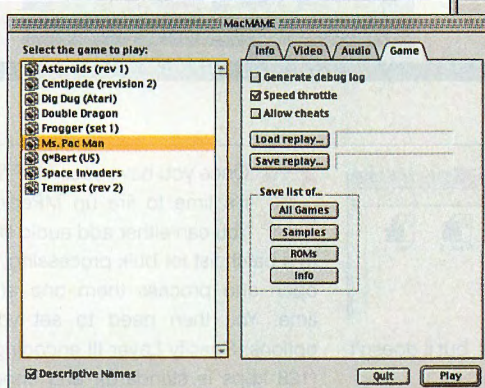
Until copyright holders make properly licensed ROM images available for purchase by nostalgic gamers, die-hard Centipede lovers have little choice but to scurry to and fro, furtively gathering illicit copies of their beloved arcade games. Heartbreaking, isn't it?

Modus Operandi: You Got Game

1 The primary MacMAME Web site doesn't provide ROM images for download, but it offers links to other sites that do. To load a ROM image, download it and put it in MacMAME's Roms folder. Note that you are violating copyright laws unless you own the actual arcade machine.

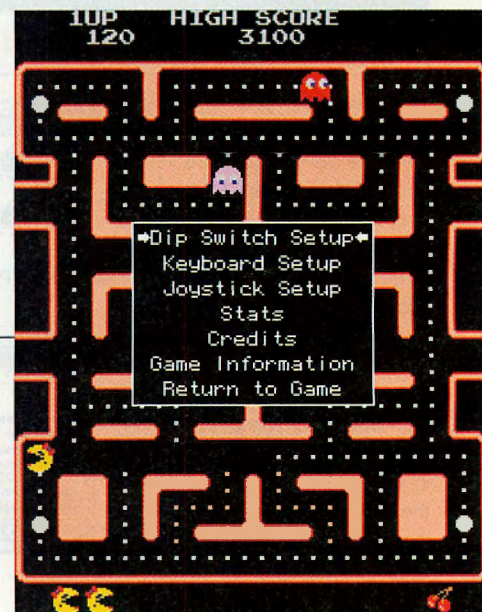
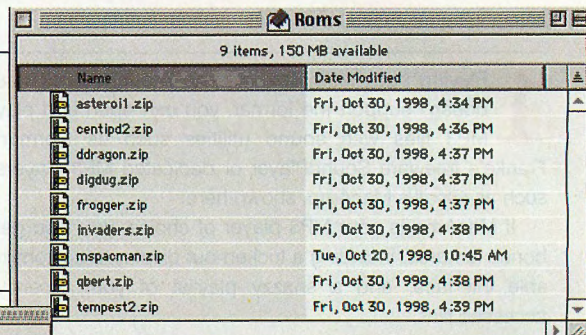
Typically, the components of your ROM images will be combined into a single compressed archive with a .zip extension; don't decompress this archive, as MacMAME is perfectly able to look inside it for the necessary code.

2 When you launch MacMAME, you see your available ROM images listed on the left, while the tabs on the right let you fiddle with the application's general preferences. Select your game of choice and click the Play button.



3 Once your game is up and running, you need to feed it a quarter, just as in a genuine arcade game—you simply press the 3 key. Then press the 1 or 2 key to select the number of players, and you're off and running.

Typically, you'll use your arrow keys to move and the Control key to fire, but you can always press the Tab key to change keyboard settings midgame, and you can quit at any point with the conventional Command-Q key combination. The documentation covers other options, including video settings and cheats.



Hotline

Hangouts:

Hotline Communications (<http://www.hotlinesw.com>), Hotline Tracker-Tracker (<http://www.tracker-tracker.com>)

Enemies:

Software publishers, the music industry, and guardians of moral decency

Identifying Marks:

Hotline consists of server and client components, both cross-platform shareware products from Hotline Communications and priced at \$69.95 and \$29.95 respectively. The Hotline Client lets you connect to a server by specifying its IP address or domain name; once you're in, you can post items to a very simple message board, join live chats, send private messages to other users, and upload or download files.

Since there are hundreds of Hotline servers, Hotline's developers have added a third component to help users locate them. When you fire up a copy of Hotline Server, you can register it with up to five "trackers." These are, in effect, directories of currently active Hotline servers; rather than having to remember each server's IP address du jour, Hotline Client users can just check their favorite tracker and choose from a list of server names and descriptions. The Hotline Tracker software is shareware, priced at \$99.95.

Rap Sheet:

Hotline servers lend themselves to the trading of MP3 music, pirated software, naughty pictures, and other illicit files. Not only can you run



a server out of your home, but the tracker system lets users find it even if you don't have a fancy name or a fixed IP address. In addition, different servers are registered with different trackers, making the mother lode of pirate goodies even harder to find. Throw in support for password-protected accounts with customizable access privileges, and it's easy for a cautious Hotline server administrator to conceal the good stuff from snoops and idle surfers.

Mitigating Circumstances:

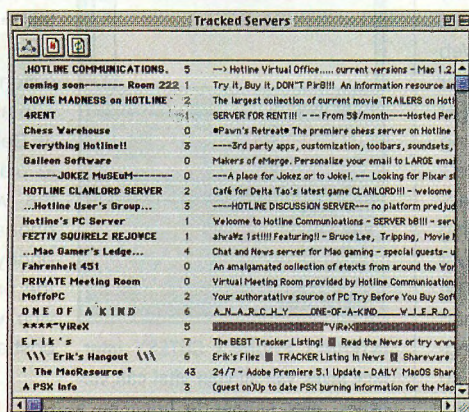
Since you don't need a powerful computer, a fixed IP address, or HTML authoring expertise to run a Hotline server, Hotline provides an easy alternative to the Web for

those who'd like to set up a simple community center or a modest shareware archive. Hotline's minimalist news feature—a scrolling list of text-only messages—doesn't lend itself to in-depth discussions, but it works just fine for chatting and file exchange. In fact, since Web sites generally can't host chats and only rarely support message boards, a Hotline server can offer services that would be nearly impossible to provide via a Web site.

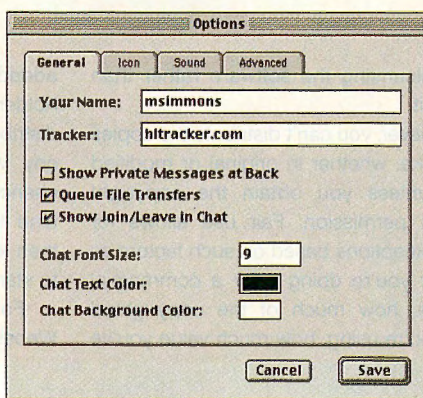
The Hotline system also has some interesting applications for long-distance collaboration. Groups can communicate via Hotline servers, using an unpublicized tracker to look up each other's servers and dropping in to deliver files or conduct a brief conference—regardless of where they are or what operating system they're using (Hotline supports System 7.5 or later, Windows 95, and Windows NT).

Modus Operandi: Picking Up the Hotline

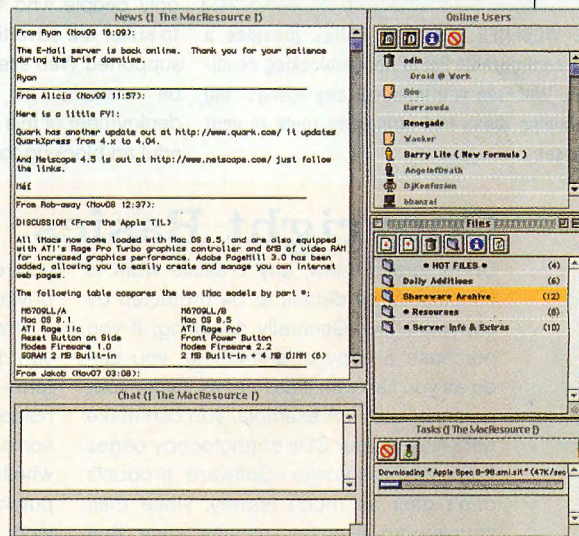
1 Using Hotline Client is pretty simple—you just launch the application and connect to the server of your choice. Unless you have a specific server in mind, click the Tracker button on the Hotline tool palette and peruse the offerings, then click on a listed server to connect to it.



2 The palette's Options dialog lets you specify a different tracker (the default is the sleaze-free hltracker.com) and give yourself a nickname—a social nicety without which most servers will quickly eject you.



3 Once connected, you can read and post news, chat with or send messages to other users, and browse the server's file libraries by tapping buttons on the tool palette. Each of these features opens in its own separate window.



wanted

BARELY LEGAL

wanted

WebFree

Hangouts:

<http://www.falken.net/webfree>

Enemies:

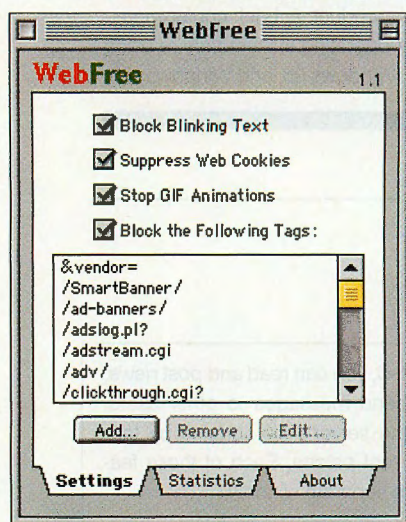
Web publishers and advertisers, <blink> tag partisans

The Straight Dope:

It's the shareware widget that Web publishers love to hate! Everybody grumbles about those darned ad banners you see plastered all over Web pages, but only Steve Falkenburg has done anything about 'em. Evidently incensed by ad banners, blinking text, cookies, and animated GIFs, Falkenburg came up with WebFree, a \$20 control panel that protects your tender eyes from these aesthetic abuses. Amazing as it may sound, WebFree actually reaches into the TCP/IP stream coming in to your Mac, excising these offensive elements before they ever reach your browser.

WebFree's ad-blocking feature is fully configurable. It looks for certain fragments of text in image tags, and blocks images that contain this text. Thus, you can exclude as-yet-unblocked advertisements by viewing the HTML source code of the offending Web page and adding some unique fragment of the image tag (such as the directory name /annoying_ad_banners/) to WebFree's blacklist.

We're not lawyers. Still, we very much doubt there are any legal implications to using WebFree; a Web publisher or browser vendor could easily get in trouble for tampering with other people's pages, but with WebFree, you're tampering with the pages for your own personal use. The only people who stand to suffer are advertising-supported Web sites, so be merciful in your deployment of this powerful ad-blocking tool.



THE WEBFREE CONTROL PANEL provides a user-configurable list of image-blocking conditions. WebFree will intercept any tag containing these text strings en route to your browser.

Internet Phone

Hangouts:

VocalTec (<http://www.vocaltec.com>)

Delta Three (<http://www.deltathree.com>)

Enemies:

Technology-phobic long-distance phone companies

The Straight Dope:

In the innocent days of the mid-'90s, the advent of Internet-based voice and videoconferencing products didn't pose much of a threat to the telecommunications industry. However, now that you can make cheap, high-quality calls over the Internet to—and even from—a regular telephone anywhere in the world, long-distance phone companies are feeling the sting.

Rather than sending voice data over conventional phone lines, Internet phone services digitize it and send it over the Internet, reassembling it on the other end and avoiding the monetary complications of traditional long-distance telephone communications. However, it looks as though the telecommunications industry will ably respond to the challenge. An April 1998 report by the U.S. Federal Communications Commission recommended that phone-to-

phone Internet telephony services pay the same fees as conventional long-distance providers, thus reducing some of the cost advantage of Internet-based services.

While the telecommunications industry wrestles with these technological shake-ups, Mac users interested in Internet telephony can hop on the bandwagon with VocalTec's \$49.95 Internet Phone. In addition to your basic computer-to-computer communications, this product lets you sign up with an Internet telephony service such as Delta Three and use Internet Phone to place calls to phones anywhere in the world. Delta Three also offers phone-to-phone Internet-based telephony at very reasonable rates, though the ongoing long-distance phone service wars have eroded much of the cost advantage of Internet telephony.



INTERNET PHONE'S CUTESY interface gives you all your vital call statistics, plus buttons to bring up a user directory or make direct-dialed Mac-to-phone calls.

Senior Editor Mark Simmons is gratified to discover that the fair use principle of copyright law makes generous allowances for parody.

Copyright Basics

Under present law, any creative work is considered by default to be protected by copyright law. Generally speaking, if you purchase a copy of something, you can do as you like with it as long as it's for your personal use. For example, you can make MP3 files of your CDs or photocopy pages from this magazine. Software products don't offer as much leeway, since their shrink-wrap licenses usually state that

you're licensing the software rather than buying it.

However, you can't distribute the copies you make, whether in original or modified form—unless you obtain the copyright holder's permission. Fair use allows for some exceptions based on such factors as whether you're doing it for a commercial purpose, how much of the copyrighted work you're using, how much value you've

added to it, and whether the copyright holder has suffered financial harm. If you distribute the entire work without adding any value of your own, and there's a chance that people won't pay for the genuine item because they have your copy—then legally speaking, you don't have a leg to stand on, even if you give it away free.

For more info, go to The Copyright Website at <http://www.benedict.com>.

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Now that's thinking different.

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The iMac and USB peripherals

HARDWARE

iMac

COMPANY: Apple Computer

CONTACT: 800-795-1000 or 408-996-1010, <http://www.apple.com>

PRICE: \$1,299 (SRP)

SPECIFICATIONS: 233MHz G3 with 512K of backside cache, 32MB of RAM, 4GB IDE hard drive, 24X CD-ROM, built-in 10/100BaseT Ethernet, 15-inch display, ATI Rage Pro graphics accelerator with 6MB of SGRAM, 2 USB ports, built-in V.90 modem

At first, we were inclined to regard the iMac's distinctive industrial design as a pure marketing gimmick, little more than eye candy for the jaded consumer. But Apple's new design approach is more than just window dressing; rather, the company has extended its knack for ease of use from the software to the hardware realm, making the iMac almost as friendly in the real environment of your desktop as in the virtual world onscreen. With its solid performance and competitive pricing, this flamboyant consumer Mac is a compelling option for the Mac addict who values no-muss, no-fuss computing over expansion capability.

To be sure, the iMac has its limits. Some people really do need PCI slots, SCSI ports, and monitor options: Digital-media dabblers

WE KNOW YOU'VE SEEN the iMac before, but could you ever tire of its style?

and cutting-edge gamers will chafe at the iMac's restrictions and should turn immediately to the Power Mac G3 line. And no matter what Apple says, the lack of a floppy drive makes ad hoc file transfer difficult. By stripping the iMac's interface options

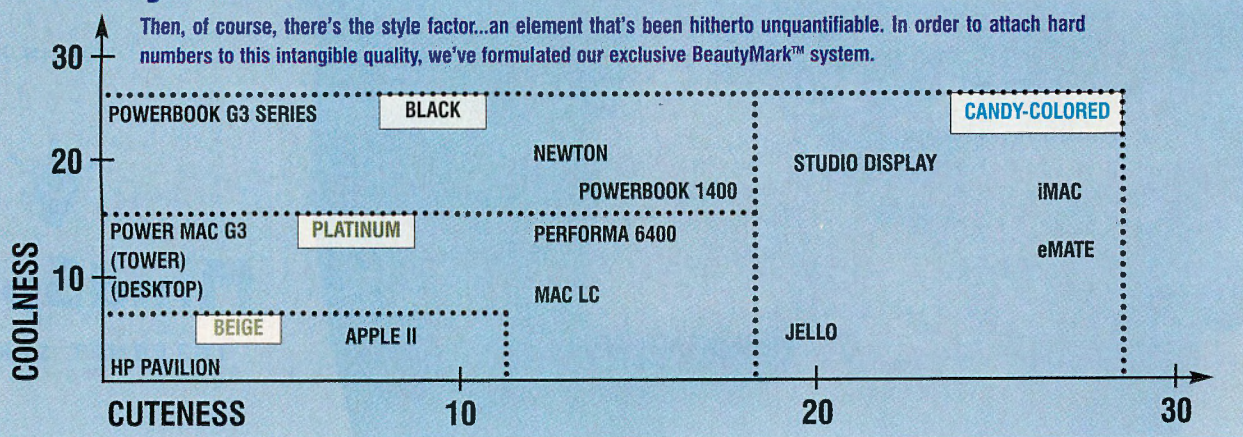
down to Ethernet, modem, and a pair of USB ports, Apple has achieved simplicity at the cost of flexibility.

However, the iMac's meager selection of ports covers a surprising amount of ground.



Photos by KB

Beauty Marks



FREAKIN' AWESOME
The most valuable products, the coolest gizmos.



SPIFFY
A solid offering. Overall a good investment.



YEAH, WHATEVER
A few good features, but generally a waste of time and money.



BLECH!
We hate to even blotch our pages with the thing.

With a couple of excellent options for USB printers and scanners, the long-awaited arrival of USB removable-storage devices, and some intriguing prospects for input devices and digital cameras, this machine is capable of meeting most of the day-to-day needs of even a serious Mac aficionado. If you're confident you won't be needing PCI cards—for example, the latest 3Dfx graphics accelerator or a DVD video decoder or FireWire peripherals—and you're prepared to jump through some storage and file-exchange hoops, the iMac's lack of expansion shouldn't prevent you from enjoying a well-rounded Macintosh lifestyle.

And with that, we'll consider the emptor adequately caveated, and proceed to laud the iMac's abundant strengths. For starters, there's the pure horsepower. Though the 233MHz PowerPC G3 processor under the Bondi blue hood represents the low end of Apple's current product line, a G3 at any clock speed is a thing of joy, and the iMac actually benchmarks pretty respectably—roughly on a par with a 266MHz Power Mac G3, in accordance with our hands-on impression. In early November, Apple revised the iMac, replacing the original ATI Rage IIC graphics chip with a Rage Pro chip and maxing out the video memory to 6MB. While this upgrade doesn't seem to affect general graphics performance, it does qualify the iMac as a pretty solid gaming machine. (This revision also addressed one of the iMac's most insidious flaws—the need to jam a paper clip into the cunningly hidden secret reset button when the machine froze; now, a simple tap of the power button suffices.)

There's more to the iMac charm than pure performance, however. The ramifications of Apple's design shift didn't sink home until we began hooking it up to an older machine for an Ethernet file transfer, a process that forced us to confront the hideous mess that lurks behind a traditional desktop computer. After we unplugged and reconnected a dozen different cables in the process of relocating the old machine, the iMac's three-step setup—USB, Ethernet, and power cable—was a striking contrast. And since most of the ports are located in the iMac's side panel, they remain accessible as you work—a real boon when you're swapping around USB gadgets. After working with the iMac, we have to wonder why computer makers spent two decades hiding the ports on the back of the box.

Having made the iMac a closed system (all you can do to customize your machine is bump up the RAM), Apple was obligated to kit it out with top-quality components, and by and large the company has done just that. The built-in 15-inch monitor is sharp and bright, with easy-to-read 640 by 480, comfortable 800 by 600, and eye-straining 1,024 by 768 resolutions. The built-in V.90 modem, aggravatingly unreliable when the iMac first shipped, has become merely quirky, thanks to a series of software bug fixes. And the 10/100BaseT Ethernet is sweet.

We were less taken with the bundled mouse and keyboard. You can reach an accommodation with the tiny mouse by resting your palm on the tabletop and steering the mouse with your fingertips, but we don't see why fashion should require us to change our time-tested mousing techniques. Fortunately, traditionalists can pick up classic-style mice from vendors such as MacAlly (<http://www.macally.com>, 626-338-8787). As for the keyboard, all we can say based on the itchy-bitsy little function keys is that Apple's industrial designers must have very small fingers.

The iMac is a nice piece of work. The futuristic packaging isn't the only forward-looking thing about this candy-colored computer. Its innovative industrial design points the way to an era when computer hardware will be held to the same usability standards we apply to our software, and Apple's USB gamble at last seems to be paying off with a cascade of cross-platform peripherals. Expansion-minded Mac shoppers will likely be happier with a professional Power Mac, but if your needs are a little more modest, the iMac packs enough power and accessorizing options so its lack of upgradability shouldn't cramp your style.—*Mark Simmons*

GOOD NEWS: Good price-performance ratio. Easy to set up.

Compact, colorful, and cute.

BAD NEWS: Least expandable Mac in 12 years. No floppy drive, dammit. Flaky modem.

Funky mouse. No FireWire peripherals.



Imation SuperDisk

COMPANY: Imation

CONTACT: 888-466-3456,

<http://www.superdisk.com>

PRICE: \$189 (SRP); SuperDisk five-pack, \$64.99

REQUIREMENTS: Mac OS 8.1 or later, 16MB of RAM, 5MB of free hard disk space, CD-ROM drive, USB port

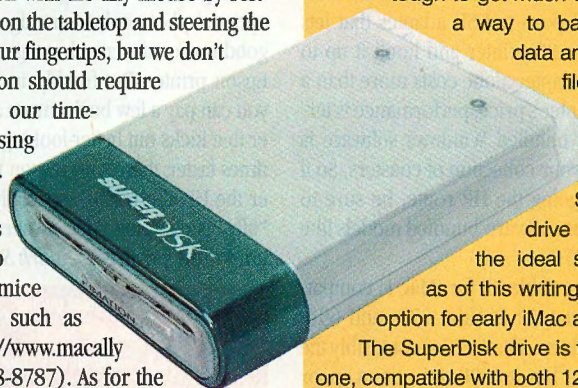
Scanners and printers are nice, but if there's one thing a Mac owner really can't do without, it's removable storage. Whether your media of choice is floppies, Zip disks, or CD-ROMs, it's tough to get much done without a way to back up your data and exchange files with your fellow Mac mavens. Imation's SuperDisk drive may not be the ideal solution, but as of this writing it's the only option for early iMac adopters.

The SuperDisk drive is two drives in one, compatible with both 120MB SuperDisks and standard 1.4MB floppies (though it can't handle multifloppy installers or older 800K disks). Due to the small base of SuperDisk-equipped Macs, you'll likely end up using floppies for data transfer and SuperDisks for backup purposes. In both modes, performance is a bit sluggish—floppy and SuperDisk data transfers are 50 to 70 percent as fast as a normal floppy drive or a SCSI Zip drive, respectively.

Our experience yielded an additional caveat. Both review units experienced software problems that required us to repeatedly reinstall the drivers. Discussions on Apple's iMac support boards indicate others have had the same problems, though the afflicted represent a minority of users. Still, even when it's stable, the SuperDisk drive makes for a slow storage solution.—*Mark Simmons*

GOOD NEWS: Floppy compatibility.

Cable included. **BAD NEWS:** Slow and sometimes flaky. Small installed base. Floppy compatibility is limited.



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iMac peripherals

DeskJet 697C

COMPANY: Hewlett-Packard

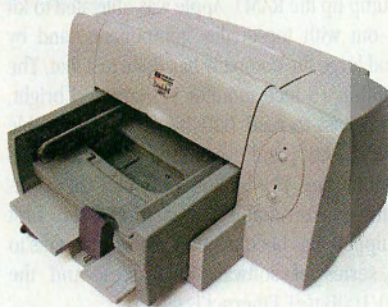
CONTACT: 800-752-0900, <http://www.hp.com>

PRICE: \$179 (SRP), \$69 for iMac HP Printer Cable Kit

REQUIREMENTS: Mac OS 8.1 or later, 32MB of RAM, CD-ROM drive, USB port

If these are the fruits of the Apple-HP printer alliance, color us underwhelmed. Rather than producing a genuine Mac-compatible inkjet printer, Hewlett-Packard has reentered the Mac market with an overpriced parallel port-to-USB adapter that lets you purchase a PC printer and hook it up to an iMac. The adapter alone costs more than a third of the printer's price, performance is terrible, and the bundled Windows software is good only for your collection of coasters. So if you insist on going the HP route, be sure to avoid paying for software-bundled models like the DeskJet 697C.

HP's Printer Cable Kit for iMac is compatible with a variety of DeskJet 670- and 690-series color inkjets. The 697C is ostensibly the top of the line, but its 600-dpi output, poor image quality, and sluggish performance pre-



vent it from being a credible competitor to Epson's offerings.

If pressed, we might cite the DeskJet's optional photo color cartridge (\$39.95) and good text quality as advantages relative to the Epson printer. But frankly, in a world where you can pay a few bucks more and get a printer that kicks out better-looking images several times faster, there's no reason to even consider the HP alternative, especially when Apple's "ally" is charging iMac owners a \$70 premium for the privilege. —Mark Simmons

GOOD NEWS: Decent text quality.

Photo color option. **BAD NEWS:**

Pricy adapter. Really slow. Output is murky, grainy, and generally yucky.



Stylus Color 740

COMPANY: Epson America

CONTACT: 800-463-7766, <http://www.epson.com>

PRICE: \$279 (street)

REQUIREMENTS: System 7.1 or later, 16MB of RAM (20MB recommended), 50MB of free hard disk space (100MB recommended), 2X CD-ROM drive (4X recommended), serial or USB cable

The first wave of peripherals for the iMac's USB interface is an impressive crop, but Epson's butt-kicking four-color inkjet is probably the best of the lot. Epson outfitted the printer with a triple-threat lineup of USB, serial, and PC parallel ports. No matter what interface you use, the 740 is a printer par excellence: Even on plain paper it churns out pages of good-looking color. And when you feed it coated paper or glossy photo paper, the results are truly fantastic.

You could mistake a Stylus Color 740 printout maxed out at 1,440 dpi for a genuine photo. On regular paper, its 720-dpi output is sharper and cleaner than anything you'll ever get out of an HP color inkjet. We were also pleased to see that colors are consistent—and consistently accurate, at least when it's printing CMYK images—regardless of paper type or quality setting. This makes it possible to spit out accurate draft pages before sinking



time and money into the Big Print.

While it's not the fastest color inkjet in town, this baby is no slouch when it comes to cranking out those pretty pages. A 360-dpi full-page color image takes about 90 seconds, and at 720 dpi on coated paper, 4 minutes. You want to take a scanned 4-by-6-inch photo and render it on glossy photo paper at 1,440 dpi? Limit your coffee break to 8 minutes. On the other end of the scale, the Stylus Color 740 can jam out a jaggy text page in about 20 seconds, but presentable text requires slower high-quality printing. —Mark Simmons

GOOD NEWS: Beautiful output even on plain paper, photo quality on special paper. Lots of ports.

BAD NEWS: No cables included. Kind of noisy.



Astra 1220U

COMPANY: Umax Technologies

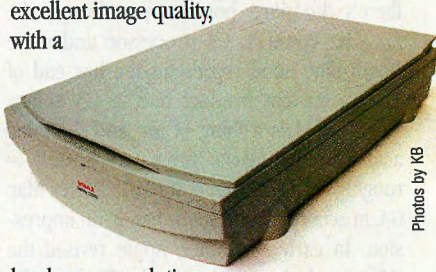
CONTACT: 800-562-0311 or 510-651-4000,

<http://www.umax.com>

PRICE: \$179 (SRP)

REQUIREMENTS: Mac OS 8.0 or later, USB port

The first iMac-ready scanner is here, and it's swell. Umax's Astra 1220U, with a scanning area of 8.5 by 11.7 inches, is essentially a smaller version of the Astra 1200S, which can scan legal-size documents. Like the earlier model, the 1220U offers excellent image quality, with a



Photos by KB

hardware resolution of 600 by 1,200 dpi and the ability to fudge this up to 9,600 dpi via software interpolation. Aside from a very slight blue tint, the Astra 1220U reproduces colors and image details faithfully, and it handles those infamous skin tones with near perfection; a 36-bit color mode provides even higher color fidelity.

Judging from our tests, the USB bus's limited bandwidth extorts only a slight performance penalty. The 1220U scanned a 300-dpi full-page color image in about 90 seconds; a 4-by-6-inch color photo took 40 seconds at this resolution, and just short of 6 minutes at a crisper 1,200 dpi. The scanner is easy to set up, and does its work in blissful near-silence. You'll have to wait through an extended calibration process whenever you first fire up the scanner after a restart, but this seems a small price to pay for superb image quality.

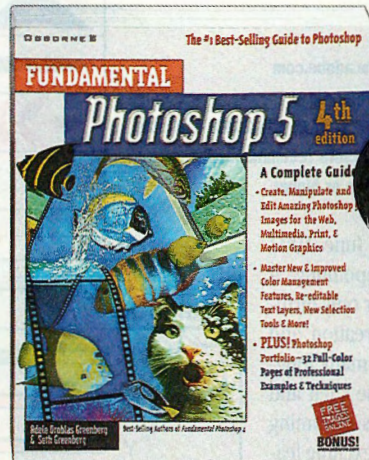
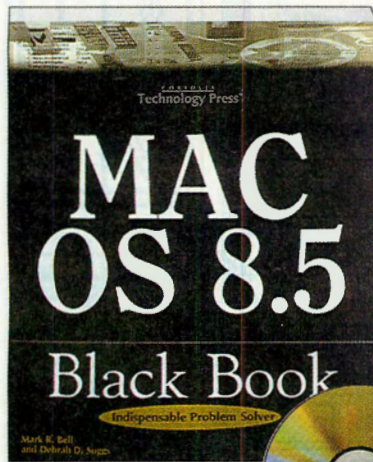
Though our review unit didn't include Mac drivers (we had to download them from Umax's Web site), the Mac-ready package includes Adobe PhotoDeluxe, NewSoft's Presto PageManager, Caere's OmniPage LE character-recognition software, Umax's Vista-Scan driver, the copier-emulating Umax Copy Utility, a USB cable, and a smattering of documentation. An optional transparency adapter is also available. —Mark Simmons

GOOD NEWS: High resolution and good image quality. Handles flesh tones perfectly. Scans quietly. Cable included. **BAD NEWS:** Slight blue tint. Small scanning area. No power switch.

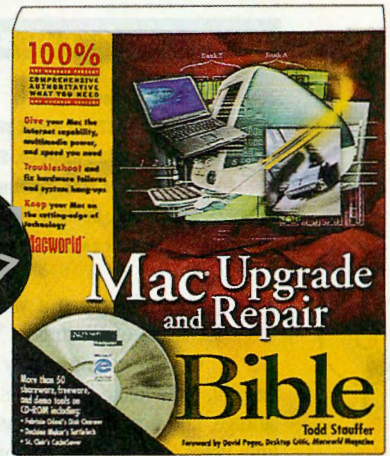


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Illustrator 8.0

DESIGN & GRAPHICS

COMPANY: Adobe Systems

CONTACT: 800-649-3875 or 408-536-6000, <http://www.adobe.com>

PRICE: \$375 (SRP), \$129 upgrade, \$199 competitive upgrade

REQUIREMENTS: Power Mac, System 7.5 or later, 32MB of RAM with 20MB available (64MB recommended), 50MB of free hard disk space (95MB recommended), CD-ROM drive, monitor capable of 800 by 600 resolution or higher



FIND A
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Illustrator
8.0 on
The Disc.

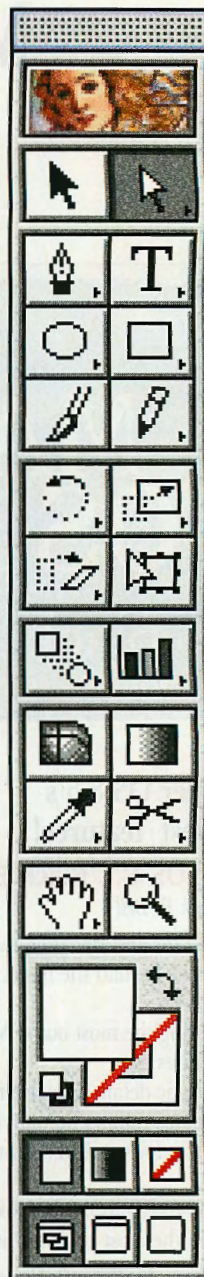
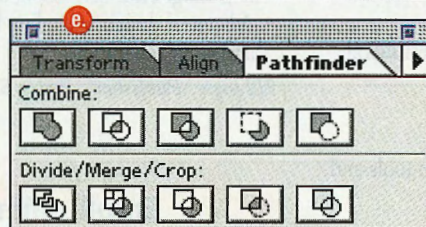
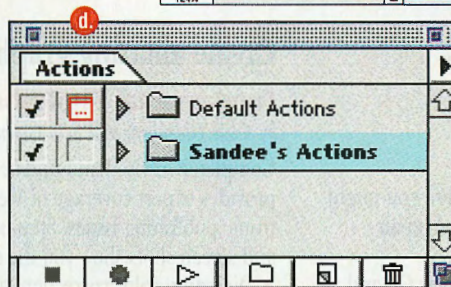
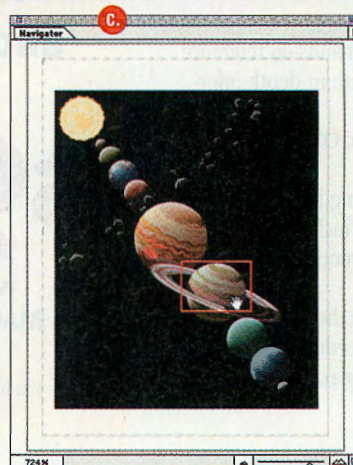
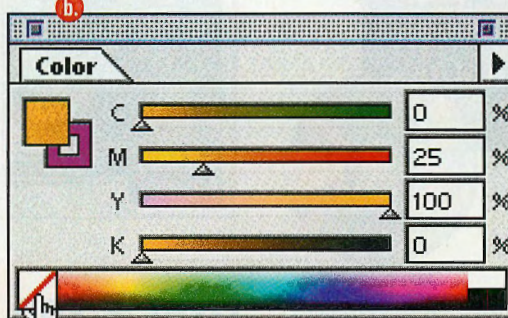
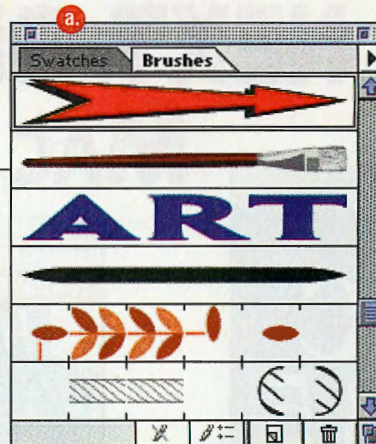
What a difference a year makes! The June 1997 release of Illustrator 7 was so disappointing, it was like getting an ugly sweater as your only birthday gift. Unfamiliar keystrokes, new color creation and storage, and new modifier keys frustrated so many long-time users that they put version 7 back on the shelf and kept using version 6. This year, the package is brimming with so many goodies that you'll find new and exciting features months and months after opening the box. There hasn't been a release this feature rich since Illustrator let you work in the preview mode. This is the upgrade Illustrator 7 should have been, and with this release Adobe has completely redefined vector illustration.

After years of offering the most primitive blending tool, Illustrator 8.0 moves ahead of the competition. Blends are "live," which means you can change the color, shape, or position of any of the key objects in a blend, and all the intermediate steps update. Adobe has gone a step further than the competition by allowing compound path blends, making it easy to create 3D effects. Blends are no longer limited to straight lines, so they can twist and turn in all sorts of shapes. Also, you can use objects filled with gradients as blends to create metallic and reflective effects. Finally, Illustrator lets you blend among more than two objects at a time—just select them all and use either the Blend command or the Blend tool. Unfortunately, the Automatic Blend command sometimes causes distortions that the Manual Blend tool doesn't. We hope Adobe will improve this feature in an update.

Someone at Adobe looked at the program Expression, took its concept of brushes, and brought these into Illustrator. So instead of the old, fake paintbrush, which simply created filled paths, Illustrator 8.0 features four different types of brushes: Calligraphic, Scatter, Art, and Pattern. Calligraphic brushes are closest to the old paintbrush. Instead of putting down a hard-to-edit filled path, these brushes are true strokes that you can easily modify. You can redefine them to be thinner or thicker, with a new angle and roundness, and all the artwork updates automatically.

The Scatter brushes are akin to Painter's "hose" feature. Scatter brushes let you define an object as a brush and then paint with the object as it scatters around the path. You can position Illustrator 8.0's Scatter objects on or off the path and rotate and resize them. This means just one scatter brush, defined as a star, can fill a sky with a whole galaxy of different-size stars, some close together and some far away.

[continued on page 52]



a. ILLUSTRATOR 8.0'S NEW BRUSHES— Calligraphy, Scatter,

Art, and Pattern—should look familiar to Expression users.

b. THE ADDITION OF THE NONE SQUARE makes it easier to set the fill and strokes for objects.

c. THE NAVIGATOR PALETTE provides an overview of a document, as well as an easy way to move from place to place.

d. THE ACTIONS PALETTE from Photoshop 5.0 is a welcome addition.

e. PATHFINDER WILL (we hope) remain on this palette with Transform and Align.

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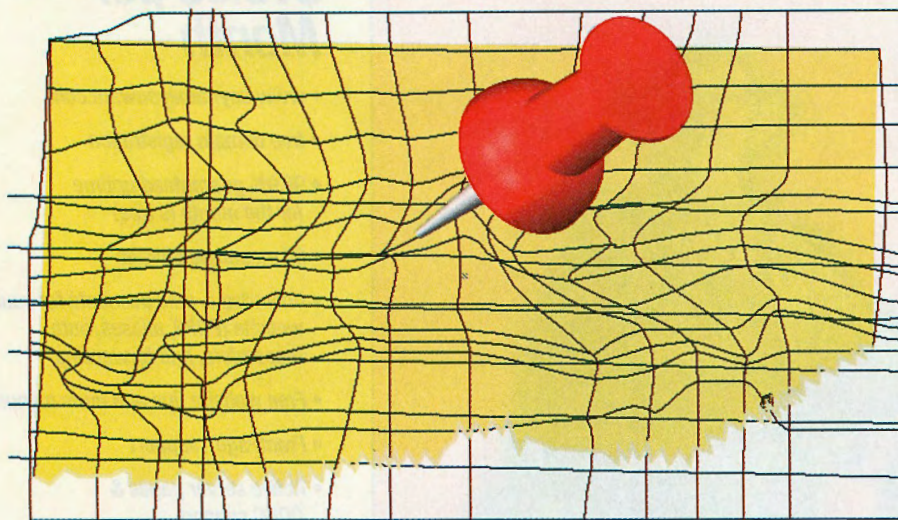
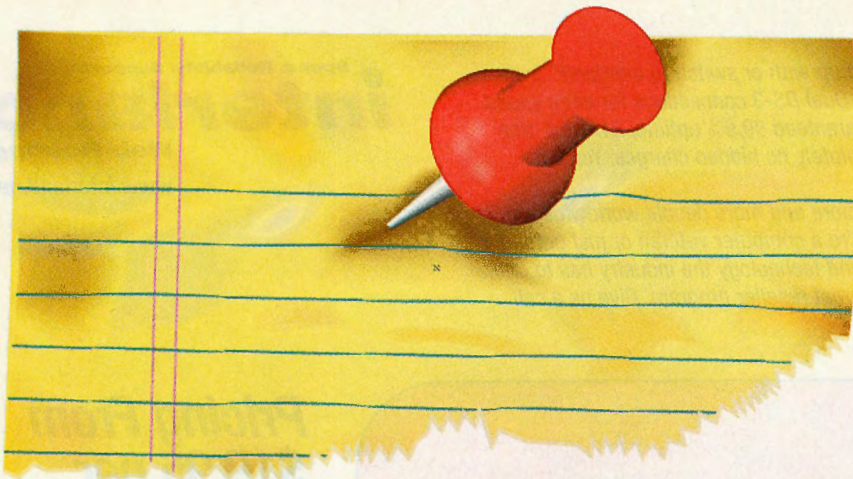
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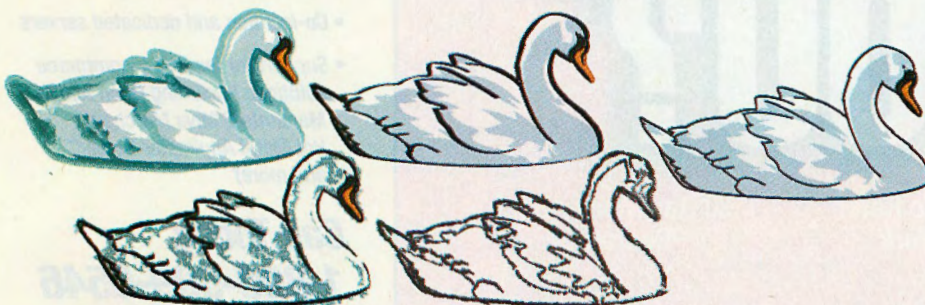


THE NEW GRADIENT MESH LETS YOU CREATE subtle shadows, contours, and color blends. You can manipulate the Gradient Mesh grid (shown just above) to create the artwork (shown at top).

[continued from page 50]

The Art brushes use existing objects to define the look of the brush. The Art brushes are most like Expression's, and allow you to paint with strokes resembling natural media—a marker pen, a watercolor brush, a bristle brush, and so on. You can even turn any object, such as an arrow, into an Art brush, and then watch it curve and bend as the brush follows a path. The Pattern brushes replace Illustrator's old Patterns on a Path. Pattern brushes make it very simple to create ropes, chains, and even railroad tracks that follow any path.

The Gradient Mesh is a new type of object that lets you blend colors together along a network of paths, rather than from object to object. With Gradient Mesh, you can create very subtle blends, contours, and shadows, resulting in artwork that looks more like a Photoshop airbrush. It takes a lot of manipulation of path nodes to position Gradient Mesh colors, and some common tools and techniques are not available when you work with Mesh objects. Ironically, most print artists used to working with vector programs may find it hard to create art-



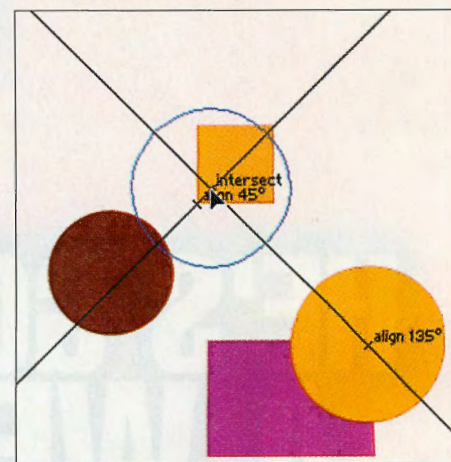
THE NEW BRUSHES EASILY CREATE artistic effects such as calligraphic pen, watercolor, pencil sketch, and crayon. We changed the original artwork on the right by simply applying different brushes.

work using the Gradient Mesh. However, anyone who has worked with 3D modeling programs will instantly grasp the concept.

Illustrator 8.0 also offers some new drawing tools and updates the old ones. The new Pencil is far more responsive and much smoother than in the past. Even better, the Pencil not only draws paths, it lets you reshape them. This is a real benefit for all those who have never been able to think in terms of Bézier handles.

For those who need more feedback and information about what they are doing, Adobe has created an onscreen feature called Smart Guides. With Smart Guides enabled, little labels pop up to tell you what type of object you are about to snap to, what angle you are moving along, and what object you are about to select. Smart Guides also let you snap to any position on a path, not just an anchor point. Anyone working with Illustrator for technical drawing or layout will appreciate Smart Guides.

The Actions palette from Photoshop is a welcome addition to Illustrator 8.0. Actions let you record commands and play them back with a single click or keystroke. This makes it easier to invoke commands that don't have keystrokes, such as Expand Blend or Add Anchor Points. You can eas-



SMART GUIDES GIVE FEEDBACK and allow easy alignment of objects.

ily store and play back the scale, rotation, and shear transformations you need to create 3D packaging, automating that laborious process. You can also combine commonly paired commands, such as Outline Path and Unite, into an Action you invoke with a single keystroke. Unfortunately, unlike Photoshop's, the Actions in Illustrator 8.0 don't allow batch processing. The next version of the program needs to add this feature.

The new Links panel shows all the linked and embedded images in a document

so you can find and update missing or modified images easily. Most important, Links records any scaling or rotations you apply to the image and automatically applies them to updates or replacements. Unfortunately, the Links palette doesn't let you extract an embedded image, nor can you find the image's color mode.

Adobe has also given Illustrator 8.0 a Navigator palette that works like the one in Photoshop. Some designers with very involved layouts will find the Navigator palette a real help. However, most designers who have mastered navigation modifier keys or have very simple documents won't have much use for it. This palette can also slow down the program, as Navigator has to keep up with the current display. If you find Illustrator 8.0 slow, try hiding the Navigator panel.

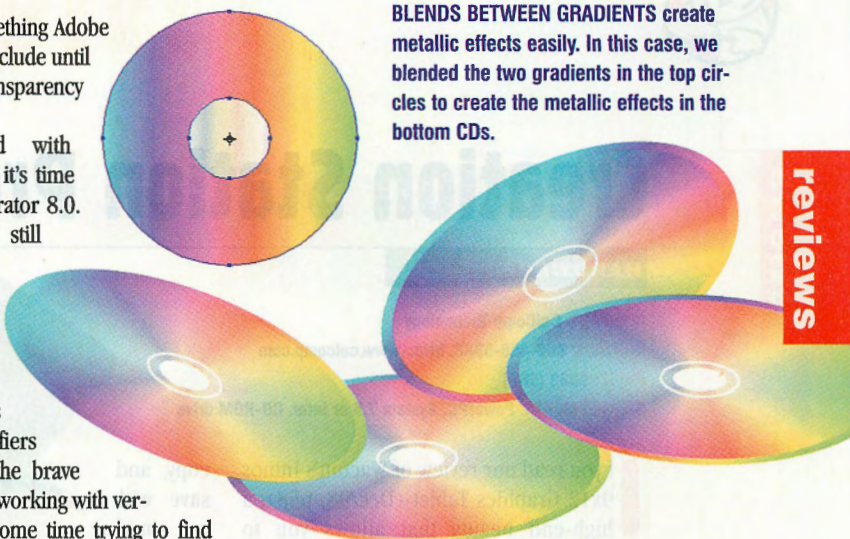
With all these new features, Illustrator 8.0 is still missing some basics: no multiple pages, no object or type styles, primitive Web controls, and no colorization of gray-scale images. Illustrator 8.0's Free Transform tool is no match for the Enveloping tool in CorelDraw. The Eyedropper and Paint Bucket tools are primitive compared to FreeHand's Graphic Search and Replace. And of course, there are the transparency lenses in FreeHand

and CorelDraw, something Adobe insists it will never include until "true" PostScript transparency is possible.

If you stayed with Illustrator 6 or 6.5, it's time to move up to Illustrator 8.0. Unfortunately, you'll still have to deal with the steep learning curve for version 8.0's new Swatches and Colors panels, as well as adapt to the modifiers for the Pen. Even the brave folks who have been working with version 7 may spend some time trying to find commands that Adobe moved around. For instance, in Illustrator's last three versions, the Pathfinder commands have been in three different places. One hopes Adobe will leave things in one place for a while.

Fortunately, Adobe has fixed many of the things that made Illustrator 7 unusable. For example, it put some of the important left-handed keyboard shortcuts back on the menus. And it added a None color to the Color panel, which makes it much eas-

BLENDS BETWEEN GRADIENTS create metallic effects easily. In this case, we blended the two gradients in the top circles to create the metallic effects in the bottom CDs.



ier to turn off the color in fills and strokes. Adobe even gave the Layers panel a command that restores the Thin layers from Illustrator 6.—Sande Cohen

GOOD NEWS: Live blends. Artistic brushes. Actions. Gradient mesh.
BAD NEWS: Steep learning curve from Illustrator 6. No customization. No styles or transparency fills.



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If you read our review of Wacom's Intuos 9x12 Graphics Tablet (Dec/98, p58), a high-end beauty that allows you to assign different colors and settings to different pens and mice, you probably thought you'd found the ultimate in electronic drawing. With four pens, two mice, and over 1,024 levels of pressure sensitivity, it certainly deserved our *Freakin' Awesome* rating. However, the Intuos 9x12 costs \$509, and to get the extra mouse and three pens, you have to shell out a total of \$839. If you can't afford that advanced functionality, CalComp Technologies' Creation Station Pro may be the solution to your budget-conscious professional needs.

At \$389, the 12-by-12-inch Creation Station Pro isn't as cheap as many consumer-level graphics tablets, but it's large, easy to use, and has a great pen with 512 levels of pressure sensitivity, as well as 45 degrees of tilt recognition. You can really feel the difference; it draws a lot like a real pen, which makes it ideal for pen-and-paper artists trying out their first graphics tablet. The pen requires no batteries, and it comes with two programmable buttons that ease the fatigue of moving among numerous menus. You can program one button to act as an eraser, saving you the trouble of selecting the oft-used eraser tool in graphics applications. Plus, the Creation Station Pro offers pop-up hot keys that allow you to choose from a pop-up menu of preprogrammed functions such as cut,

THE CREATION STATION PRO SUPPORTS all major graphics programs, so you can draw your Aunt Louise—and her big, bad bouffant—directly into your Mac.

Illustration by JT

copy, and save with a simple click of your pen. The graphics tablet also ships with a five-button digital mouse that replaces a traditional trackball.

The graphics tablet has a clear overlay for tracing images. The Creation Station Pro's WYPIWIG (where you point is where you go) mode makes tracing a sweet and easy dream. In WYPIWIG mode, the tablet



WE TRACED THIS MASTERPIECE using the Creation Station Pro's WYPIWIG mode.

mirrors the screen, so if you move your pen to the lower-right corner of the tablet, the pointer moves to the lower-right corner of the screen. This allows you to do exact tracing with clean, continuous lines, even if you accidentally lift your pen off the tablet. (Hint: Trim the edges of images so they fit securely under the overlay. This helps keep the image from moving while you trace it.) You can also program the pen so it works more like a traditional mouse.

A good tutorial easily outshines a dozen confusing PDF manuals, and the Creation Station Pro offers an excellent example of this in its simple, elegant multimedia tutorial, which teaches you almost everything you need to know about your new graphics tablet in less than 15 minutes. Plus it's fun: You get to paint by numbers and connect the

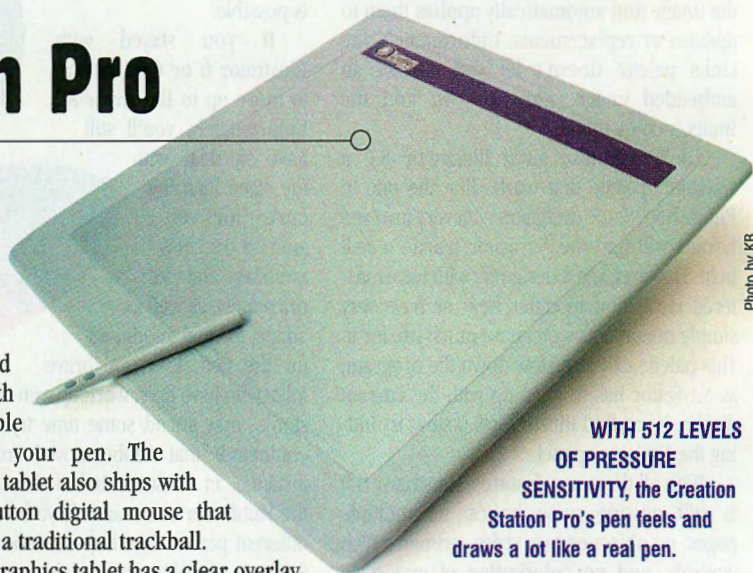


Photo by KB

WITH 512 LEVELS OF PRESSURE SENSITIVITY, the Creation Station Pro's pen feels and draws a lot like a real pen.

dots, and the audio narrator has a soothing voice of the kind normally reserved for TV commercials and PBS documentaries.

The Creation Station Pro is compatible with most graphics programs, and it ships with MetaCreations' Kai's Photo Soap SE and Art Dabbler. Before you shell out \$400, however, you should consider some cheaper alternatives, namely the 4-by-5-inch consumer-oriented Creation Station, which offers much of the Pro version's functionality at only \$129. While a larger-size graphics tablet is a must-have for many graphics professionals, many users probably don't need the extra drawing space or extra cost. For folks unaccustomed to using a graphics tablet, the larger size may even be a liability, since it means a whole lot of reaching, as well as greater distance between the eye and the hand.

The Creation Station Pro also comes in a 6-by-9-inch model (\$289) and a 12-by-18-inch model (\$599). But if you're looking for the freedom of a large-size professional graphics tablet *and* an affordable price, the middle-of-the-road 12-by-12-inch model may be your best bet.—Jeff Titterton

GOOD NEWS: Easy to use, super-pressure-sensitive pen. Big drawing area. Pop-up hot keys provide one-click shortcuts to most-used commands.

WYPIWIG (where you point is where you go) mode allows for easy tracing and drawing. Reasonably priced for the professional market.

BAD NEWS: Large tablet size means you have to reach. The Pro version is three times as expensive as its 4-by-5-inch cousin, Creation Station, which makes the Pro worthwhile only for those who need a lot of drawing space—namely graphics pros.



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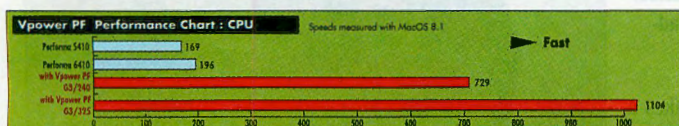
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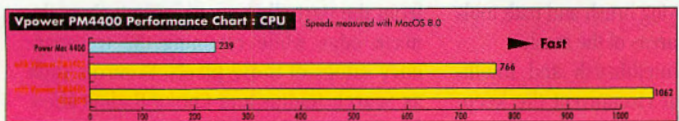
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Mask Pro 2.0 versus KnockOut 1.0

DESIGN & GRAPHICS

Mask Pro 2.0

COMPANY: Extensis

CONTACT: 503-274-2020, <http://www.extensis.com>

PRICE: \$299.95 (SRP), \$69.95 upgrade

REQUIREMENTS: Power Mac, System 7.5.5 or later, 32MB of RAM, Adobe Photoshop 4 or higher

KnockOut 1.0

COMPANY: Ultimatte

CONTACT: 818-993-8007, <http://www.ultimatte.com>

PRICE: \$495 (SRP)

REQUIREMENTS: Power Mac, System 7.5 or later, RAM 5 to 8 times the image size plus 3MB available application RAM, Adobe Photoshop 4 or higher

By far the most grueling, thankless job in the bitmap biz is creating masks for pulling an image off its background and compositing it with another image. You can spend all day with Photoshop's selection and QuickMask tools and still not get it right. Or you can turn to one of these two masking wonders. Each works very differently, and neither one completely eliminates the need to go in and hand-paint difficult areas, but they can save you countless hours on the edge (literally and figuratively).

In its first release, Extensis's Mask Pro was our pick for best Photoshop masking plug-in,

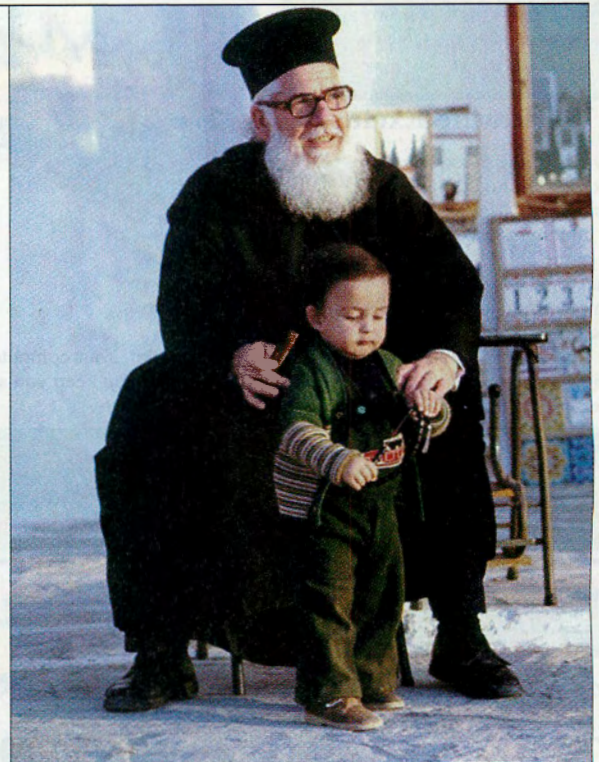
THIS MIGHT LOOK LIKE AN EASY MASK JOB, but it's actually a nightmare. All the edges are soft; the background is very close in color to the hair and beard; there's glass transparency in the spectacles; and there are soft shadows around the feet.

and version 2.0 makes a good thing even better, with many refinements to existing tools and a handful of valuable new ones. Among the new features are the ability to create selections (for later use in adjustment layers) as well as clipping paths and masks, improved edge blending and edge recognition, and "intelligent" tools for quick—in some cases, one-click—masking.

Like version 1, Mask Pro 2.0 mainly employs color-difference techniques to work its trickery. Much of your work involves using the appropriate eyedropper tools to select a number of Drop colors and Keep colors, using the difference between them to mask areas of the image, then applying brush and path tools to address problem areas of the mask.

With the new Intellibrush and Intellwand tools, you can circumvent the keep-and-drop color process when you're dealing with highly contrasted or uniform backgrounds; just click on a color to mask all areas of that color. Another new approach is to use the Magic Pen, an edge-detecting path-creation tool, which is rather like Photoshop's own Magnetic Pen except that you have more drawing control (you can back up to erase parts of the paths and redraw them), and the threshold detection between areas works better.

One of the nice refinements in version 2.0 is the ability to see underlying layers while you work with the mask. Thus you

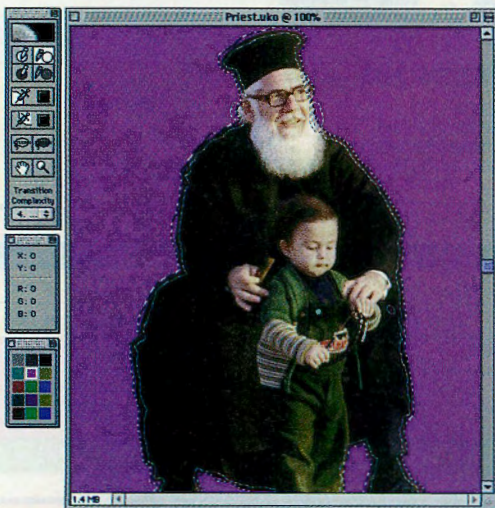


can test how your mask looks as you make it—something KnockOut can't do. An improved Clean Up mode makes it easy to see and remove last-minute stray holes in the mask using the Magic Fill Bucket.

But our vote for best new ability is EdgeBlender, which removes the pesky halos of leftover color that often cling to masked areas. EdgeBlender eliminates them by removing background colors from the partially transparent pixels at the mask edge while retaining the transparency values of those pixels. Controls such as Search Radius and Choke Radius allow fine-tuning of edges. You'll really use EdgeBlender, because setting the threshold values in Mask Pro can be a tricky business—you often have to make a trade-off between an edge that still carries a bit of the background, and an edge that is too sharp and aliased.

While Mask Pro 2.0 keeps you on edge, KnockOut lives by the rule that there are no edges, only transitions. Boiled down, the KnockOut masking process is deceptively simple: You use the Inside Object tool to draw a line defining the inner boundary of

[continued on page 58]



IN KNOCKOUT, THE INNER AND OUTER LINES DEFINE THE area of transition. We had to draw special boundaries to define the hair and beard areas better, and the spectacles required Syringe work.

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INFOWAVE

[continued from page 56]

the transition zone, and draw another line with the Outside Object tool to define the outer boundary. KnockOut automatically figures out the mask, producing a processed foreground (image on black) and an alpha channel you can load into Photoshop for compositing. Because transparent background pixels drop to black, it's easy to remove excess background pixels with Photoshop's Remove Black Matte tool. When you're masking images with complex edges, such as hair and fur, the process can be much quicker and easier than masking with Mask Pro 2.0.

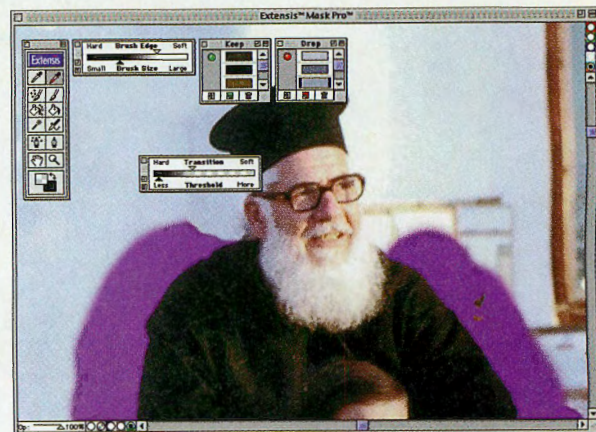
The art of KnockOut masking is to get the lines through the colors at the boundary of the transition zone without actually crossing it, because the more tightly the inner and outer lines define the range of transition colors, the more accurate the mask will be. (A pen tablet makes it easier to draw precise lines, but a mouse works satisfactorily.) The Auto Outside function automatically draws an Outside Object line based on an inside line you've already drawn; in many cases, this is all you need. If the area is too thin to draw within, the Inside Object tool has a Single Pixel selection option to include small regions inside the inner boundary. A similar option for the Outside Object tool lets you exclude areas of the background that appear within the object (for example, the space between a

WE'RE APPLYING MASK PRO 2.0'S ARTILLERY of tools, including adding and dropping colors, soft-edged brushes, and threshold adjustments.

model's arms and body). The Syringe tool makes it possible to preserve or eliminate specific colors—as when, for example, you want to preserve the tint of a colored glass windowpane, but not the scenery showing through it.

The impressive Inside and Outside Shadow tools let you create a separate shadow mask that removes the background colors but preserves the shape and edge transitions. No other masking program we've tried lets you pull out shadows this way. The best thing about KnockOut, though, is that it creates masks using a nondestructive method. You can save the outlines and image together as a project, which allows you to edit or regenerate the mask at any time.

We generally preferred KnockOut's softer mask edges over Mask Pro's harder ones, but offsetting that is KnockOut's tendency to leave slight halos between the edge of the transition area and the outside line.



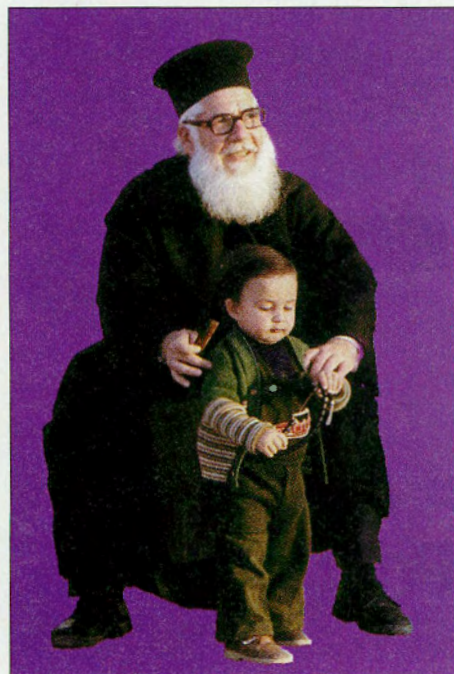
These are so slight that against many backgrounds they may not be noticeable at all—but they're there. If you can see them, you can fix them easily with the Levels control on Photoshop's alpha channel. This is a problem Ultimatte should address.

Also, you'll need eight times the image size in RAM, plus a few MB more, for full KnockOut functionality—heavier RAM requirements than Photoshop itself. And KnockOut, which is a stand-alone app, not a plug-in, works only with single-layer RGB Photoshop files, forcing an advance trip to Photoshop to flatten multilayer images and convert them from other color spaces such as CMYK.

Whether you choose Mask Pro 2.0 or KnockOut depends in part on your working habits. If you live in Photoshop and rarely leave it, or if you deal mainly in CMYK, you'll be happier with Mask Pro 2.0. If you don't mind venturing out of Photoshop's comforting confines, don't mind a little postprocessing, and have RAM to burn, KnockOut works masking magic that Mask Pro can't touch. Frankly, if masking is your métier, we think you'll want to own both.

—Steve Anzovin and Raf Anzovin

MASK PRO 2.0'S CONTROLS GIVE YOU very good results. The edges around the shoes are too hard, however, and the beard and hair required manual softening.



KNOCKOUT PUNCHES OUT A GREAT MASK, with soft edges that look just right. But note slight problems around the back of the hat and a hard halo on the spectacle frames.



Mask Pro 2.0

GOOD NEWS: Can automatically choose colors in many cases.

Excellent EdgeBlender for busting halos.

Creates automatic clipping paths and selections.

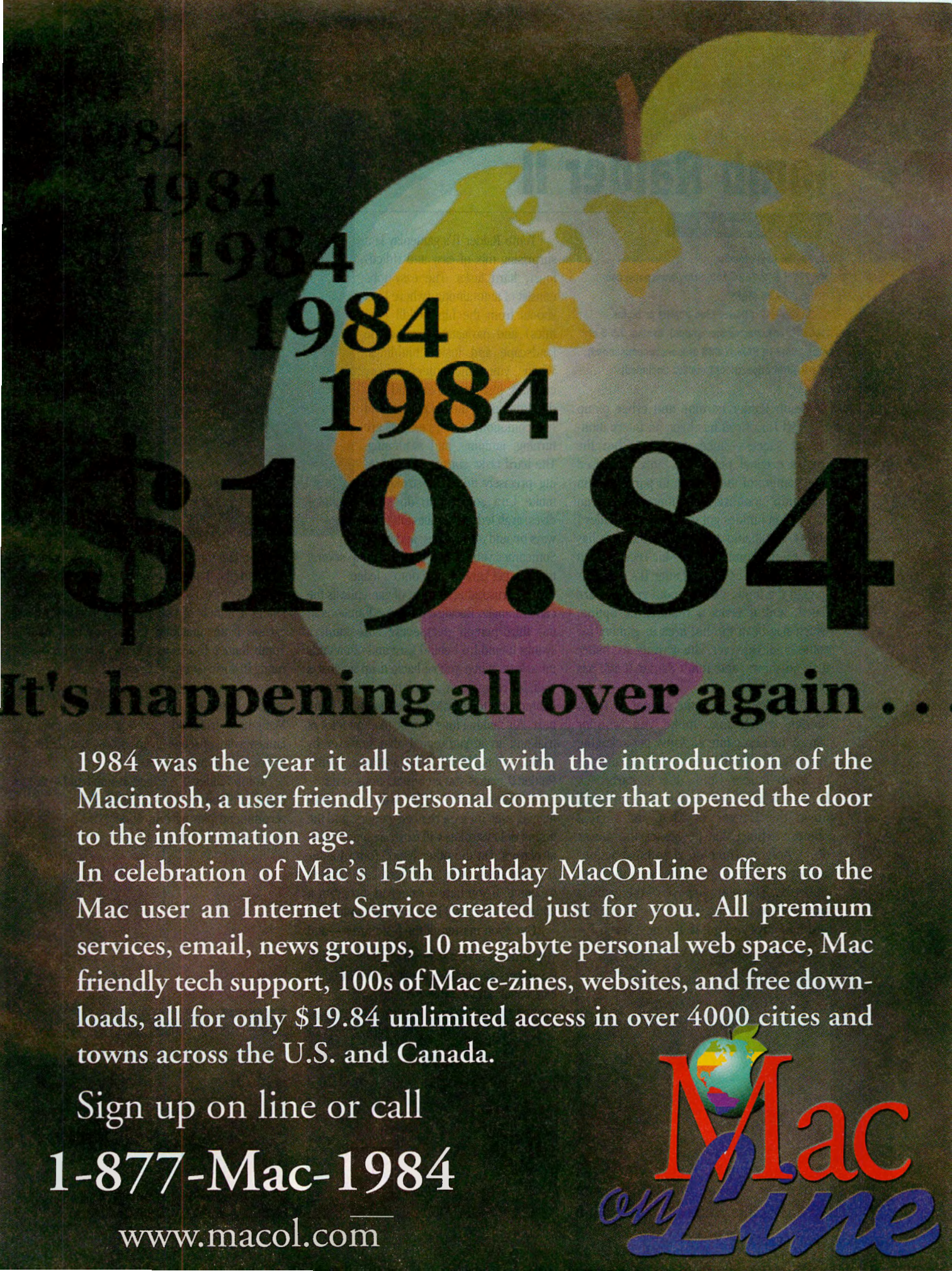
Works seamlessly within Photoshop.

BAD NEWS: Won't pull out shadows. Defining edges is sometimes laborious. Some hard edges.

KnockOut 1.0

GOOD NEWS: Very fast, intuitive masking process. Better at masking shadows, hair, and transparencies than any other product.

BAD NEWS: Not seamless with Photoshop. Doesn't work on CMYK. Uses a dongle. Large RAM requirements. Requires postprocessing to remove slight halos.



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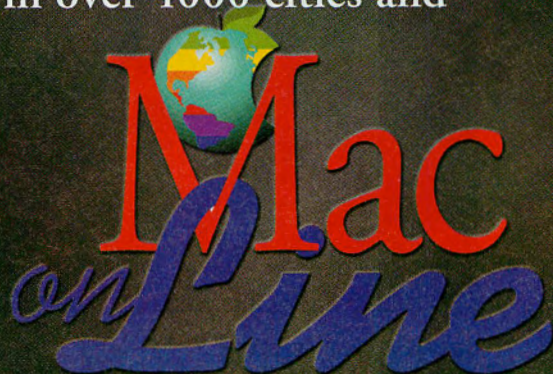
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Tomb Raider II

FUN & GAMES

COMPANY: Aspyr Media

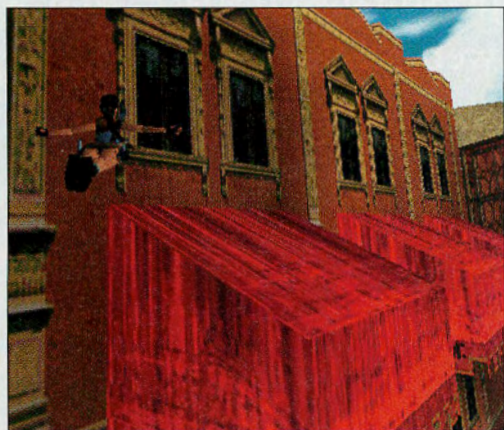
CONTACT: 512-708-8100, <http://www.aspyr.com>

PRICE: \$49.95 (SRP)

REQUIREMENTS: Power Mac 80MHz or faster (100MHz or faster recommended), System 7.5.3 or later, 16MB of RAM (24MB or more recommended), 4X CD-ROM drive, QuickTime 3.0 (included)

Tomb Raider heroine and cyber pinup girl Lara Croft has been an international success since early '97, but the game's original publisher, Eidos, deprived Mac gamers of the chance to participate in the pop culture phenomenon. Even PlayStation junkies got to play Tomb Raider I and II. But thanks to Aspyr Media, Lara has been raiding tombs on the Mac recently. Is it too little too late? Tomb Raider II's engine is long in the tooth; its once-cool graphics are dated; and it lacks a multiplayer option, which has been the hot area in gaming for some time. However, late arrivals are better than no-shows, and Tomb Raider II still has plenty to offer.

Tomb Raider II is the sequel to Tomb Raider, which may make you wonder where the first game is. Aspyr is packaging Tomb Raider I with a couple of expansions in Tomb Raider Gold, due in early '99. Lara's job in Tomb Raider II is to track down the Dagger of Xian, an ancient Chinese artifact that possesses the power of the dragon. The plot, as in most action-adventure games, remains secondary to gameplay. The real purpose of the game is to move Lara through a series of puzzles and bad guys and get to the next level.



Tomb Raider II's gameplay is a surprising mix of easy and ridiculously hard tasks. The easy jobs consist of auto-aiming (where Lara shoots from the hip to kill enemies) and navigating around the landscape and inside buildings. When you encounter creepy crawlies, just shoot them and they die. Running is the default method of locomotion, so that's easy, as are turning, jumping, and swimming. The hard tasks consist of combining precisely timed keystrokes to make Lara somersault, do swan dives, grab ledges, somersault sideways on and off surfaces, and so on. Sometimes you have to repeat a jump several times to get Lara to grab onto a ledge.

One frustrating element of gameplay is the camera angle. Because the game functions in the third-person perspective, the camera swings to and fro behind Lara and often ends up askew. When you're backed up against a wall, for example, you can't move the camera behind Lara to see where she's going to jump next. For making long jumps, plan on a lot of trial and error. You remedy that, however, by saving often. More than anything, Tomb Raider II makes you a conscientious saver.

Exploiting Lara's agility will prove challenging even for experienced gamers, and the timing of keystrokes will frustrate many casual players. On the other hand, Tomb Raider II's difficulty is what most hard-core gamers welcome. If you have a gamepad, program it and use it to control Lara more smoothly.

Once you master all the fast moves—and

THE JUDGES GIVE A 9.35 out of 10 for this daring somersault-and-a-half with a Kerri Strug flair. Check out the extension.



THE EVER-PERKY LARA CROFT is really an archaeologist who digs artifacts. Hmm, what if she and Indiana Jones got together?

we do mean *master*—Tomb Raider II is a lot of fun to play. Its mix of action, puzzle solving, and adventure is balanced and challenging. Doing a bunch of somersaults off ledges to escape from attacking tigers is very cool. Tomb Raider II also gets kudos for incorporating historic landmarks, which other adventure titles often ignore, and featuring a tough-as-nails female character as the protagonist. Many have criticized Lara as a teenage boy's fantasy with obscene proportions, but that's not quite true in the game.

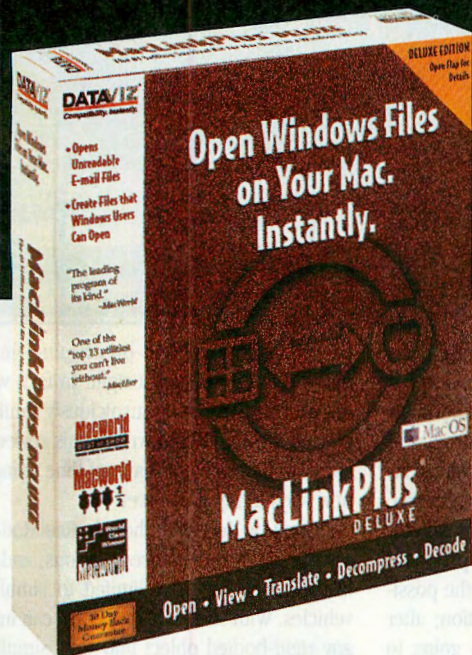
Tomb Raider II is a long-awaited and welcome addition to the Mac game library. We recommend playing it in Glide (3Dfx) mode for maximum raiding fun.—Jennifer Ho

GOOD NEWS: Good mix of puzzles and action. Runs well on almost every Power Mac. Challenging adventures in exotic locations. Supports RAVE and Glide. **BAD NEWS:** Frustrating puzzles. Timing Lara's movements will challenge even veteran gamers.



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ReelMotion 1.0

DESIGN & GRAPHICS

COMPANY: Motional Realms

CONTACT: 703-860-0714, <http://www.reelmotion.com>

PRICE: \$795 (SRP)

REQUIREMENTS: Power Mac, 16MB of RAM, System 7.5.1 or later, 10MB of free disk space, QuickDraw 3D 1.5 or later

The problem of animating the complex 3D interactions of a vehicle traveling over rough terrain can drive any computer animator to screaming insanity. Sure, anyone can animate a stylized car moving across a flat plane, but creating realistic and believable vehicle motion by hand is so tedious that even the most skilled animators hate to do it.

ReelMotion, a remarkable new procedural animation program from Motional Realms, is optimized to do one thing and do it well: animate 3D vehicles driving, flying, and crashing into brick walls, falling off cliffs, getting into three-car fender benders, and all the other things vehicles do. Rather than working within the traditional keyframe animation system other animation programs use, in ReelMotion you set up movement based on the simulation of real physical forces. In effect, ReelMotion puts you behind the wheel of a car, truck, sports utility vehicle, plane, motorcycle, helicopter, or lunar lander (the program includes models of them all), while it takes care of all the complex interactions of gravity, velocity, acceleration, and impact. Once you've got a movement you like, you

REELMOTION DOES REAL-TIME, dynamically accurate vehicle simulations—just step on the gas and go.

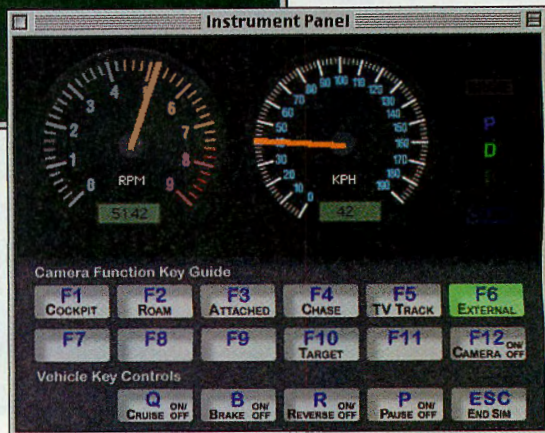
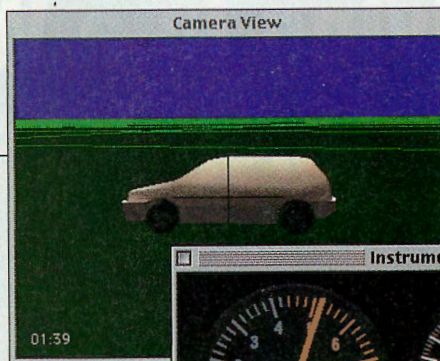
simply export it with ReelMotion plug-ins to your animation program of choice (such as Electric Image, LightWave, or Cinema 4D) for the rest of the animation, lighting, and rendering process.

Animating in ReelMotion is remarkably easy, with simple, mouse-based controls anyone who has ever driven a car can easily grasp—even those who, like this reviewer, have never been behind the wheel. It is nothing like animating with any other program. For one thing, ReelMotion restores the possibility of happy accidents to animation; after all, you don't know exactly what's going to happen in a simulation until you go ahead and simulate it. The procedure you use to get results from ReelMotion is also entirely different. Instead of planning everything out to the nth degree beforehand and then laboring for hours to get it perfect, you can simply simu-

late an action over and over again—in real time—until it looks just right. In fact, working with ReelMotion is suspiciously similar to playing a game. While writing this review, we spent an inordinate amount of time trying out new ways to flip a car over.

Don't be deceived, though: ReelMotion is a surprisingly full-featured, serious, and useful program that isn't limited to simulating vehicles. With some creativity, you can import any rigid-bodied object into your simulation as an Interactive Dynamic Object, which dynamic forces affect. If you want to bounce a ball off your windshield or knock over a tree, this is how you do it. Or an object can be an Interactive Static Object, which affects moving

[continued on page 64]



Bounce the Ball

ReelMotion allows you to set events into motion. Here, we pitted a VW against a killer ball to see what the outcome would be according to Newtonian physics.



A REELMOTION SIMULATION INVOLVING A CAR and a giant rubber ball: The rubber ball is an Interactive Dynamic Object with an already-recorded bouncing motion. The user controls the car's motion.



THE BALL GOES SLIGHTLY INTO THE GROUND on its bounce. This is a function of Spring Strength, and gives the impression of a soft object even though ReelMotion cannot actually squash and stretch the ball at all.



BOP! BECAUSE THE BALL IS SO MUCH LIGHTER than the car, the car's motion is hardly affected by the collision, while the ball bounces back.



THE CAR BOUNDS over a bump in the terrain.

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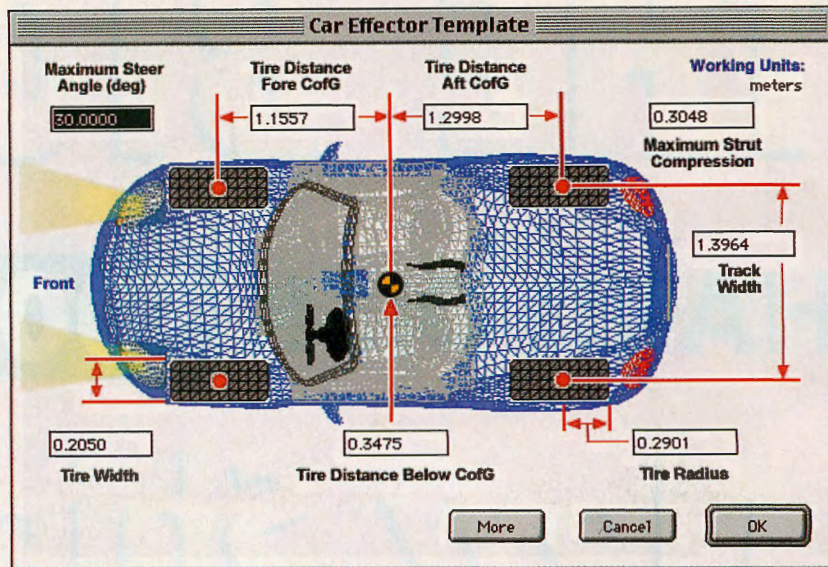


[continued from page 62]

objects but is not affected by them. An Interactive Static Object such as a brick wall will flip your car over if you ram into it at full speed, but not sustain any damage itself.

ReelMotion also allows you to drive around on top of any 3D object. With few exceptions, almost any DXF object can serve as a terrain. Drive your car model over a mountain terrain, and it will actually look as though the tires are dipping into every pothole as the car tilts and climbs. The steeper the grade, the slower the car goes. Speed up at the crest and the car soars into space; hit the dirt at the end of your arc and the car convincingly goes end over end and slides to a stop. This makes complete interaction with the modeled scene back in your animation program ridiculously easy—you're no longer limited to flat roads and simple ground planes.

You use automatic templates to set up dynamics for cars, planes, helicopters, and motorcycles, and this is as far as most users will need to go. But behind the scenes, ReelMotion offers an impressive amount of control over vehicle dynamics. Sets of effectors enable you to rig up a custom vehicle with extra wheels, wings, or propellers. A whole host of dynamic variables let you control everything from the amount of traction on a tire to the spring strength on a surface. You can even choose the type of engine the program will simulate (including a "UFO" engine that simulates antigravity). If you want total control and possess a fair knowledge of physics, there's nothing to stop you from building and simulating a Dr. Seuss-



esque jet-propelled hovercraft with 10 wings sticking out at odd angles, or a gigantic Jawa sandcrawler that reacts to its environment in exactly the same way it would if someone were to go out and actually build one. The collision-detection and simulation are so accurate (the aerodynamic models are based on NASA technical data) that you can use ReelMotion for accident and forensic simulations.

We do have a few caveats about this otherwise excellent program. While ReelMotion has many different kinds of camera views, ranging from a cockpit view to a "chase" view in which the camera simulates the motion of another vehicle, the standard front, right, and top views of 3D programs are missing. These would be useful for positioning vehicles in

YOU CAN CRAFT CUSTOM SETS of vehicle effectors for cars, planes, and other vehicles, or add objects of your own.

relationship to imported scenery. It's also unfortunate that every lower-level control is numerical. You can't take a DXF hill and drag it to where you want it. Instead, you have to specify its position in meters from the center point. Presumably, this essential functionality was left out because you could do most of this type of positioning in your main animation and rendering package, but it's still a substantial omission.

In addition, you are severely limited in the number of objects with which any vehicle can interact. ReelMotion allows only one Interactive Dynamic Object, one Interactive Static Object, and one terrain in a scene. The reasoning behind this is understandable: With more interactive objects, the real-time dynamic calculations would quickly bog down most Macs. There are ways to work around this limitation, although they involve careful planning and awkward trade-offs. However, it would have been nice if Motional Realms had allowed more objects as a nod to the power users out there and to the faster Macs already appearing and yet to come.

ReelMotion is a one-of-a-kind animation app with few serious drawbacks. If you need to animate vehicles, and you want the kind of realism that's nearly impossible to get by hand, you need ReelMotion.—*Raf Anzovin*

GOOD NEWS: Incredible new way to animate. Accurate simulations of dynamics. Comprehensive in-depth controls. Easy-to-use import and export motion plug-ins. **BAD NEWS:** Mostly numerical controls. No standard camera views. Limited number of interactive objects.



The ReelMotion Road

ReelMotion's motion data wouldn't be very useful if it couldn't talk to your other animation and rendering programs. Luckily, a large number of ReelMotion import and export plug-ins are available from Motional Realms' Web site for such programs as LightWave, Electric Image, and Cinema 4D.

Here's how to take a scene from your animation program into ReelMotion and back again.

- 1. Model all the elements** of your scene in your animation program as you would for any other scene. Make sure that the center of rotation of the vehicle is exactly in the middle of its volume.
- 2. Take the wheels off** the vehicle, center their centers of rotation, and save them separately. Make a note of the radius and numerical position of the wheels—this information will be important later. Save the vehicle without the wheels.
- 3. Create a low-res "proxy"** of the wheel-less vehicle by eliminating as many polygons as pos-

sible. If you still can't get it under 2000 polygons, the ReelMotion plug-in can do the reduction for you.

- 4. Run the ReelMotion export plug-in** and load the resulting model into ReelMotion as DXF object geometry. Also export the entire terrain as one object and any other things you want the car to bump into as other objects. Note: You can do this step even without a ReelMotion plug-in by exporting a normal DXF, but it won't be as accurate.

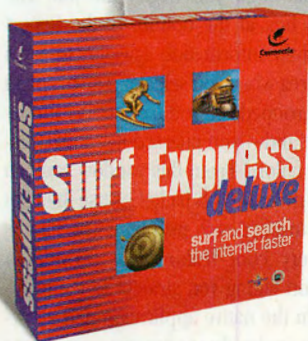
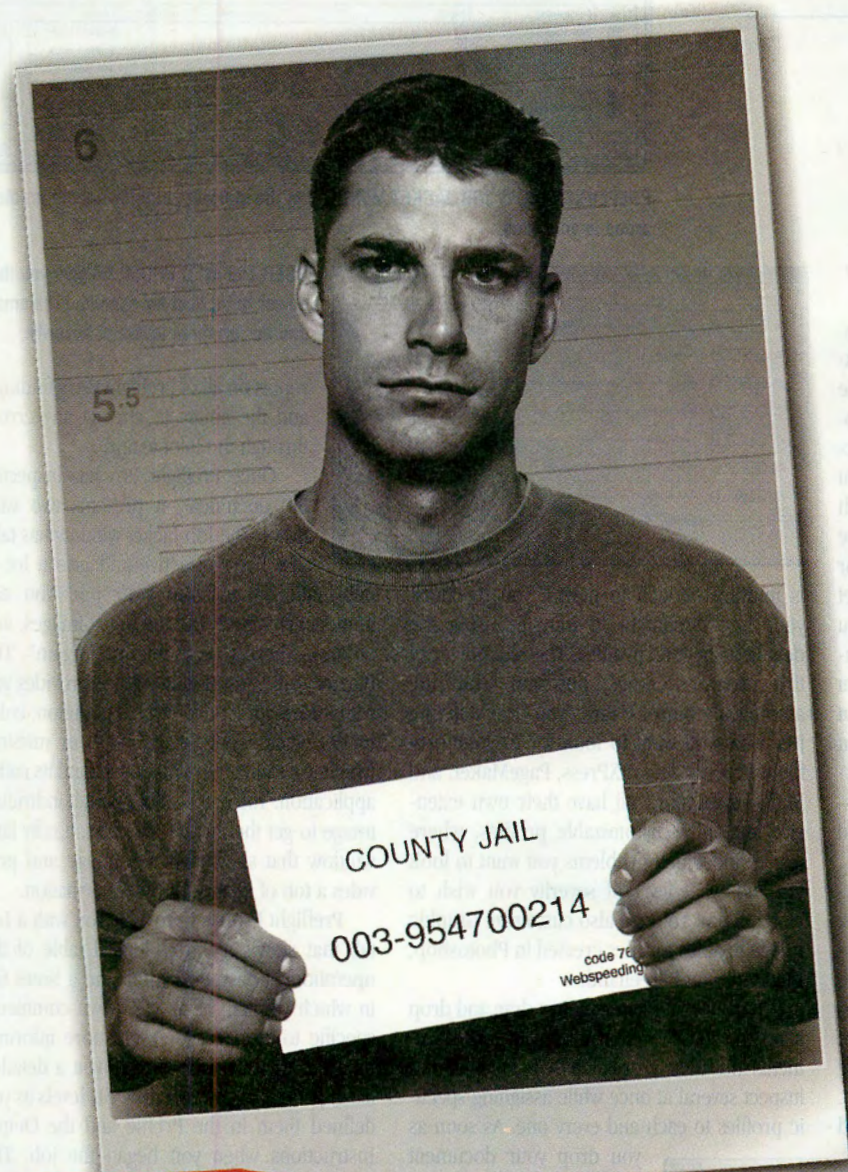
- 5. Set up the vehicle** using the appropriate dynamics template. Enter the values for wheel position and radius for ReelMotion's simulated wheels. Import the terrain as a terrain object and the stationary objects as Interactive Static Objects.

- 6. Run the simulation.**

- 7. Export the motion data** in ReelMotion format. If you want to import it into a program for which there is no ReelMotion plug-in, try using one of the supported Motion Capture formats.

- 8. Import the data** into your program of choice and attach the vehicle body and wheels to it.

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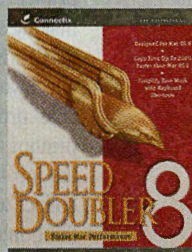
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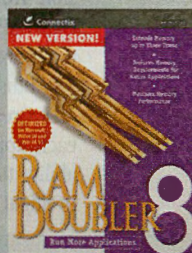
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Preflight Pro 2.1

DESIGN & GRAPHICS

COMPANY: Extensis

CONTACT: 503-274-2020, <http://www.extensis.com>

PRICE: \$399.95 (SRP), \$99.95 upgrade from

Preflight Pro 1.0, free upgrade from 2.0 to 2.1

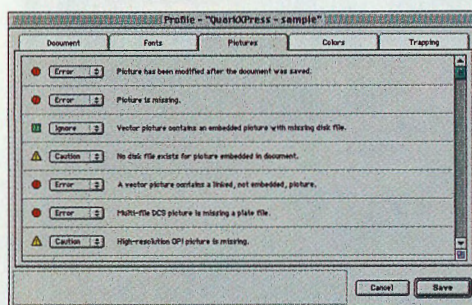
REQUIREMENTS: 68040 or faster, System 7.5 or later, 15MB of RAM, Adobe Acrobat Distiller 3.0 or later for Export to PDF feature



FIND A DEMO
of Preflight
Pro 2.1.1 on
The Disc.

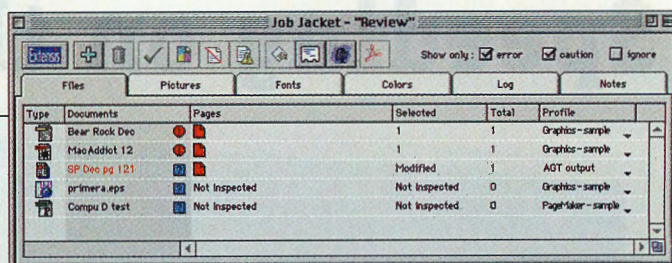
Fonts. Images. Colors. Fonts. Images. Colors. If you do any kind of file preparation for print production, you know the mantra, and you know just how many problems any of these elements can pose in a document. Extensis Preflight Pro can keep you from spending endless hours opening each graphic element, checking to see if both the printer and screen fonts are available, or making sure that all of the colors used are set to CMYK mode. This great utility lets you check your documents for almost any imaginable problem that will keep the job from printing correctly. Once you're satisfied that the job has passed muster, Preflight Pro can collect all the job elements and stuff everything into a self-extracting archive for transport or create PDF files for platform and device independence.

Version 2.1 looks and feels similar to version 1.0, but now supports more than just QuarkXPress. With it you can inspect anything created in PageMaker 6.5, Photoshop 3.0, Illustrator 5.5, Freehand 7.0, and Multi-Ad's Creator2 1.0, plus all later versions of each application. Version 2.1 also adds the ability to inspect Adobe Acrobat PDF files. Preflight Pro installs quickly from the CD and



is intuitive enough to permit you to check your first document in minutes using the default inspection profiles. The real power of this program comes, however, from the amount of control it gives you over defining just what you want to look for in your preflight process. QuarkXPress, PageMaker, and Multi-Ad Creator2 all have their own extensive and fully customizable profiles, where you define which problems you want to look for and what level of severity you wish to assign them. You can also customize Graphic Image Profiles for files created in Photoshop, Illustrator, and Freehand.

To inspect a document, just drag and drop it on the Job Jacket. You can inspect documents individually, or batch them together and inspect several at once while assigning specific profiles to each and every one. As soon as



PREFLIGHT PRO'S JOB JACKET WINDOW is the starting point for finding problem areas in your files.

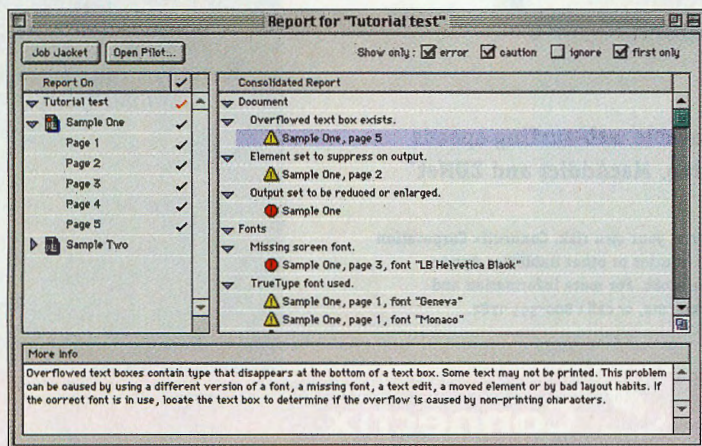
USER-DEFINED PROFILES give you the power to inspect for specific problems and assign them levels of severity.

report on all of Preflight Pro's findings, and the ability to correct any errors through the Pilot feature.

Once Preflight Pro has inspected the document, it presents two windows. The Job Jacket window has tabs that become active and give a lot of information specific to your job. You can immediately check out the fonts, images, and colors—there's that mantra again! The Pictures tab is especially cool. It provides you with information on file type, resolution, color mode, whether the image is OK or missing, whether it's linked or embedded, and its native application. You can also click each individual image to get the Picture Info box, a nifty little window that shows you the image and provides a ton of image-specific information.

Preflight Pro also provides you with a Log tab that shows a chronological table of the operations it has performed, and a Notes tab in which you can enter your own comments specific to the job. For even more information, the Report window gives you a detailed list of problems and their severity levels as you defined them in the Profile and the Output Instructions when you began the job. The More Info box at the bottom of the Report window gives information specific to each problem area when you select it. The problem areas are grouped by Profile category for document size and—you guessed it—fonts, pictures, and colors! From this window you can either return to the Job Jacket or use the Pilot feature to inspect each problem. The Pilot is another very cool feature that provides a Show button taking you straight to the problem area in the native application and allowing you to make the necessary corrections before returning to the Report window.

When you are satisfied that you have corrected all of your job's problems, Preflight



you drop your document onto the Job Jacket, Preflight opens an Output Instructions window where you define whether you are using spot or CMYK colors, your line screen, and the final trim size. After this you are a few clicks away from inspection, a full

THE REPORT WINDOW OFFERS A LIST of problem areas with detailed explanation specific to each item in the More Info box.

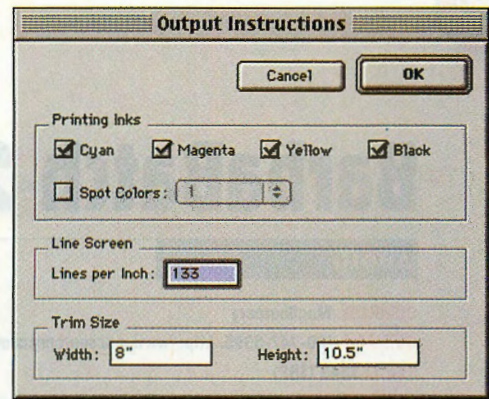
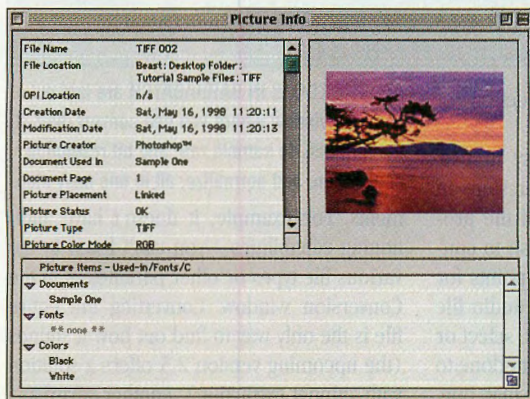
Pro 2.1 even takes care of those last little details. It collects your job, along with all of the elements, and packs them up for you. Painless? Yes, and even more so with the included Automation features. You simply set up a "watch" folder in which to drop your jobs, and Preflight Pro automatically inspects and transfers them into Pass or Fail folders you specify. You can assign further actions in the jobs through the Automations Settings and have successful jobs collected, printed, or stuffed.

While Preflight Pro 2.1 is a great utility that provides plenty of help and information essential to successful file output, a couple of minor quirks can prove annoying. The Pilot

feature helps you navigate to problem areas and correct them, but if you want to have the Preflight Report reflect your changes, you must remember to resave your document in the native application and then run the Preflight check again to get an updated report. Also, although Preflight Pro supports more than one version of native applications, if you have only one version on your machine, you must make sure to save documents in the version you use. For example, it will not inspect both 3.3 and 4.0 versions of QuarkXPress documents unless you have both versions running on your machine. If you have only QuarkXPress 4.0, you must open any files created in earlier versions and

resave them in 4.0 before running them through Preflight. The same holds true for jobs created in PageMaker. Therefore, you must open documents created in 5.0 or 6.0 and save them to 6.5 if that is what you are running. Lastly, Preflight Pro 2.1 will not inspect native documents created in Freehand, but will inspect any document that

PICTURE INFO PROVIDES DETAILS specific to each image.



SELECT YOUR COLOR MODE, line screen, and final size before running the inspection.

has been saved as a Freehand EPS file.

This user-friendly utility gives you a plethora of information and the means to correct problem files efficiently so you can get on with production. You can use the very good tutorial, but even without it you can use the program right out of the box.—*Susan Meredith*

GOOD NEWS: Now supports multiple applications. Clean. Straightforward. Easy to use. Excellent tech support.

BAD NEWS: Won't recognize documents created in earlier versions of your software. Will only preflight Freehand EPS files.

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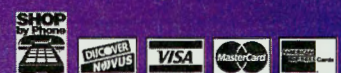
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BarbaBatch 2.48

AUDIO

COMPANY: MacSourcery

CONTACT: 760-747-5995, <http://www.macsourcery.com>

PRICE: \$349 (SRP)

REQUIREMENTS: 68040 or higher (some conversions, such as Qmusic QuickTime 3.0 and RealAudio 5.0, require a Power Mac), System 7.1 or later, 8MB of free RAM, CD-ROM drive

If you regularly work with digital audio files, you should know about BarbaBatch. The package is actually a suite of five programs that gives you some very potent tools for converting and manipulating audio files at speeds that leave the competition in the dust. You can convert file types (over 30 file formats), sample rates (up to 96KHz), and bit resolutions (up to 32); join lots of audio files into one; and even rename files in many different ways.

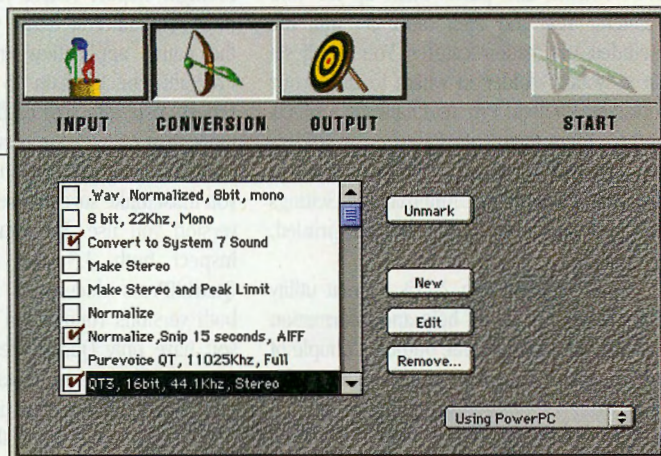
Installing BarbaBatch is very easy, and the 180-page manual is a coherent guide. The CD installer places on your hard drive a folder containing five applications: BarbaBatch, AffixIt, JoinIt, MoveIt, and NameIt. BarbaBatch 2.48 offers 19 new file types, including support for QuickTime 3.0, RealAudio 5.0, Ensoniq Paris 24 bit, and Dyaxis Macmix file

formats. By the time you read this review, an even newer version of BarbaBatch should be out.

BarbaBatch's interface is easy to use, since there are basically just four steps in the conversion process. First, tell the program what files or folders you wish to convert. (BarbaBatch also gets high points for the Play button, as it plays every audio file found in the selected folder.) Next, select or create the conversion jobs you want done to those files—you can choose more than one. Third, select where you want to save those files, and last, press the Start button. What's really great about this design is that you can convert the input files into many different file types in one process. Since BarbaBatch is AppleScriptable, you can really take this ability to extreme degrees.

BarbaBatch's conversions are quite speedy. In our tests, it converted a CD-quality (44.1KHz) 7.1MB file into a 22KHz, normalized file in 39 seconds. Competitors Peak 1.65 and WaveConvert Pro took 47 seconds and 2 minutes 4 seconds on the same file, respectively. Not only were the times faster, but the BarbaBatch file also sounded noticeably better than its competitors' files. However, the speedy times disappear if you do a Qmusic QuickTime 3.0 conversion. The same file we used in the first conversion test took 6.25 minutes to complete, but the file output was only 212K in size and sounded all right.

While BarbaBatch works really well, it stills needs a few minor improvements. **BARBABATCH'S EDIT CONVERSION WINDOW** shows how you can generate many different file types in one process.



ALL THE TOOLS IN BARBABATCH are laid out in a single window where you can convert over 30 file formats, do sample rate and bit resolution conversion, and normalize, all in one easy step.

For example, it doesn't have auditioning capabilities—you can't listen to the various file types or other parameters in the Conversion window. Converting the entire file is the only way to find out how it sounds (the upcoming version 2.5 offers a solution with snippet extraction). Another surprising behavior is that Region support (extracting or compacting) in BarbaBatch doesn't work on all AIFF file formats. If you use Peak as your sample editor, save the files as Sound Designer II format and you'll be OK.

The four additional programs included in the BarbaBatch bundle make it an even more valuable package. AffixIt can define a text file list to replace the Regions in a file. MoveIt can move only those files that match names in a text document. JoinIt can join files that you wish to manipulate with the same EQ equalizer or effects, and NameIt can change names by adding, removing, replacing, inserting, and even deleting text from a folder of files.

This pro audio conversion utility is worth its weight in gold. If you're a digital musician or serious hobbyist looking for a superior weapon in the fight for sample rates, pro-quality file types, and bit resolution conversions, BarbaBatch 2.48 is the bomb. —*John Lehmkuhl*

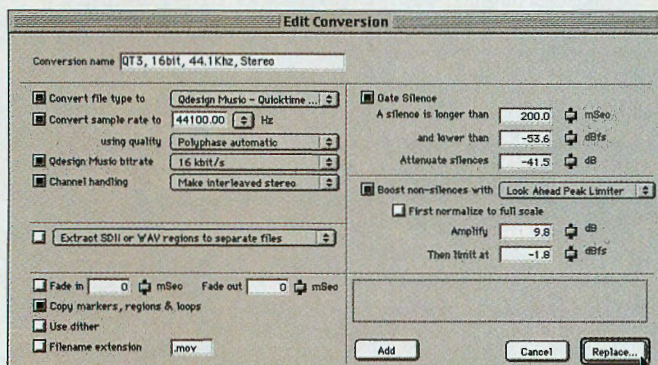
Step Up to BarbaBatch 2.5

VERSION 2.5 WILL BE AVAILABLE by the time you read this review and will include the following features:

Set to go pro: Support for the pro version of the Qdesign QuickTime 3 codec (you must own the codec module for this feature).

The fade is made: Separate Fade In and Fade Out parameters.

Snippet extraction: The ability to convert a piece of a file—for example, the first 10 seconds of each track on an audio CD.



GOOD NEWS: Features five very flexible, high-quality tools for working with digital audio. Powerful, easy-to-use interface. Screaming-fast conversions with awesome-sounding results.

BAD NEWS: Region extraction doesn't work with all AIFF formats. Expensive.





reviews

Morpheus

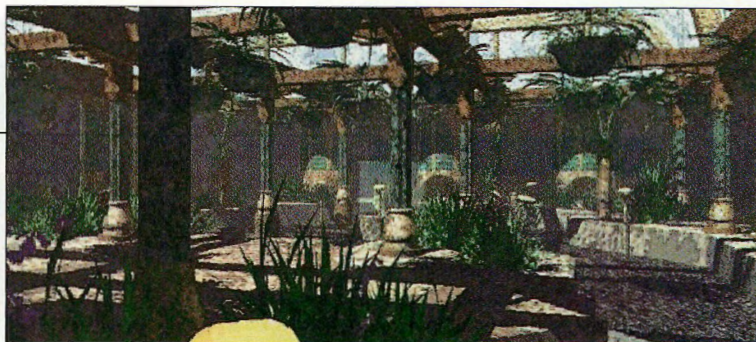
FUN & GAMES

COMPANY: Piranha Interactive

CONTACT: 602-491-0500, <http://www.piranhainteractive.com>

PRICE: \$49.95 (SRP)

REQUIREMENTS: Power Mac, System 7.5 or later, 8MB of RAM, 70MB of free hard disk space, 4X CD-ROM drive



THE LOST HERCULANIA is filled with technological wonders far ahead of their time, including this greenhouse where strange, exotic orchids grow.

There's a thin line between dreams and nightmares, and Piranha Interactive's new adventure epic, *Morpheus*, explores these subtle differences in three CDs with a complex story line, haunting videos, and vivid graphics. In *Morpheus*, you're an Arctic explorer tracking the fate of your long-lost father. Separated from your party, you are slowly freezing to death. Then, out of the dreamlike mists of a bitter blizzard, you see an abandoned ship, frozen in the ice. It's the Herculania, the same missing luxury liner that drew your father to these Arctic wastes years ago.

Eager for warmth, you board the deserted ship, but it seems haunted. You begin to experience visions and dreams, and hear the voices of missing passengers. As you probe abandoned corridors, you piece together fragments of twisted lives and home in on the dark secrets of the ill-fated Herculania.

Puzzles propel the plot and give you wider access to the mysteries. You'll find a variety of dream worlds to explore in *Morpheus*, each stunningly rendered in 3D with full 360-degree panning. The graphics are gorgeous,

the acting is professional, and the music and ambient sounds work seamlessly. Snippets of live action video flesh out the story and provide clues to the puzzles. *Morpheus* is a thoroughly enjoyable hunt-and-explore game, with a plot that may generate nightmares of your own.—*John Lee*

GOOD NEWS: Handsome graphics. Full 360-degree panning. Integrated puzzles. **BAD NEWS:** No interaction with characters in game.



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Morpheus on
The Disc.

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PageMaker 6.5	6
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Mac OS 7.5	4
Multimedia	1
PageMill 2.0	2
Photoshop 4.0	10
PowerPoint 4.0	3
Premiere 4.2	3
QuarkXPress 3.3	4
QuickBooks 4.0	3
Quicken 98	1
Troubleshooting 7.5	4
Word 6.0	6

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PhotoTools 3.0

DESIGN & GRAPHICS

COMPANY: Extensis

CONTACT: 800-796-9798, <http://www.extensis.com>

PRICE: \$149.95, \$49.95 upgrade

REQUIREMENTS: Power Mac, System 7.5 or later, Adobe Photoshop 4.0 or 5.0, CD-ROM drive

Photoshop 5.0 was a godsend to many graphics pros and artists. Reeditable drop shadows, bevels, embosses, glows, text, and more made their lives easier and more productive. The reediting feature alone sold many upgrades, which made Adobe very happy. However, Extensis couldn't have been too thrilled. Many of Photoshop 5.0's new features bested the plug-ins bundled with Extensis PhotoTools 2.0. In response, Extensis engineers rolled up their sleeves and produced PhotoTools 3.0, a terrific upgrade that offers a few new tools as well as some refined favorites.

PhotoTools 3.0 offers significant enhancements without straying from the tried-and-true Extensis way: creating powerful, easy-to-use Photoshop plug-ins. In particular, PhotoTexture, PhotoGroove, PhotoButton, and PhotoCastShadow offer intuitive, far-reaching solutions that minimize redundant work and extend a graphics pro's or artist's repertoire.

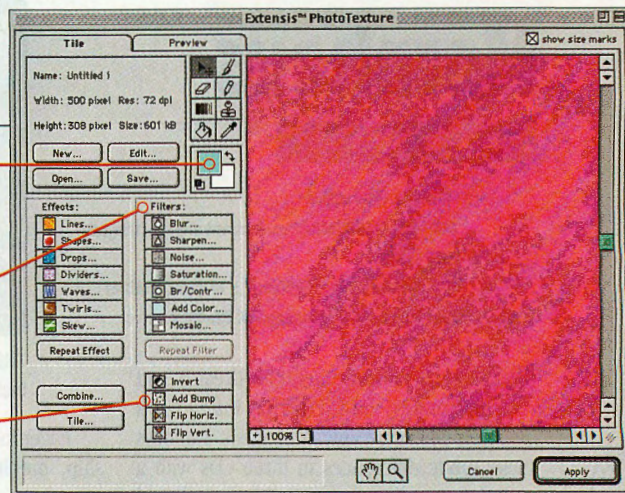
PhotoTexture offers the most powerful texturing engine we've seen. It allows Photoshop users to combine multiple textures and colors to create seamless, tiled textures each and every time. With PhotoTexture, you can easily add effect upon effect, yielding textures that resemble everything from a folded silk sheet to a harsh extraterrestrial landscape to a battered wooden tabletop. PhotoTexture provides 46 textures for your perusal, use, or modification. Unfortunately, these effects aren't reeditable, as Photoshop 5.0's Layer Effects are, which makes them useful only for Photoshop 4.0.

Even if Extensis offered only PhotoTexture and the PhotoCastShadow plug-in, PhotoTools 3.0 would still be a great package. PhotoCastShadow not only features a perspective blur, which makes a shadow progressively fuzzier as it moves away from

THIS SQUARE shows the foreground effect.

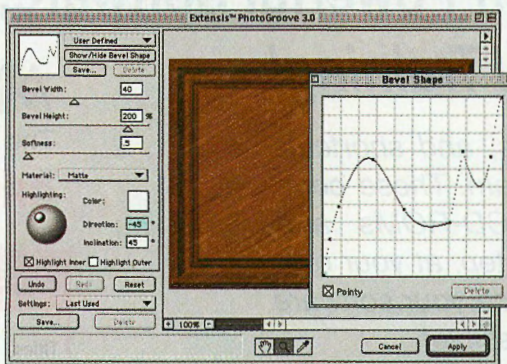
FILTERS SHOW effects you can add on top of a texture.

YOU CAN ADD bumps to textures by choosing Add Bump.



its source, but it also enables you to add multiple light sources. A noise feature eliminates banding when you print and at certain levels of JPEG or GIF compression where artifacts are common. Other features include a cutout effect and several blending mode options.

PhotoGroove is a new plug-in that deserves high praise as the only bevel tool with a shape editor. With PhotoGroove, Photoshop users can create and save their



CREATE AND SAVE YOUR OWN GROOVES or choose from some prefab ones in PhotoGroove.

own bevels. Need to make a complex picture frame? First use PhotoTexture to create a woodlike pattern, then use PhotoGroove to turn the texture into a lifelike frame in seconds. As with other tools, PhotoGroove allows you to specify a material, including Chrome, Rubber, and Heavy Metal, each of which has different qualities.

Extensis has substantially upgraded PhotoButton, a PhotoTools standby. In addition to its tools for creating, modifying, and saving your own button shapes, PhotoButton 3.0 provides 15 editable shapes. The plug-in

HAVE YOU EVER HAD SO MANY OPTIONS and so much power at your fingertips?

now allows you to use any JPEG as a button texture and gives you the option of using any texture file as a bump map, which is useful for setting great-looking alpha channel text in buttons. You can also use PhotoButton to create a matrix of up to 64 buttons and make the background transparent—a Webmaster's dream.

Webmasters also rely on animated GIFs—they're everywhere. PhotoAnimator 1.0, bundled with PhotoTools 3.0, is a simple application for creating animated GIFs. Just specify an animation's start and end points, and it generates all of the frames between. However, lack of support for common animated GIF features, such as different frame delays, cripples PhotoAnimator, so you're better off designing your own frames using the freeware application GIFBuilder. And PhotoAnimator isn't the only so-so part of the PhotoTools package. The PhotoGlow, PhotoBevel, and PhotoEmboss plug-ins offer little beyond standard Photoshop 5.0 effects.

PhotoTools 3.0 is a compelling upgrade for four reasons: PhotoTexture, PhotoGroove, PhotoButton, and PhotoCastShadow. Each is probably worth \$50 alone, so the \$49.95 upgrade or \$149.95 first-time purchase is a bargain. With PhotoTools 3.0, Extensis continues to prove that it stands atop the Photoshop hill as the king of plug-ins.—Erik J. Barzeski

GOOD NEWS: Tons of options. Multiple shadows. Great texture capabilities. **BAD NEWS:** PhotoBevel, PhotoEmboss, and PhotoGlow duplicate some of Photoshop 5's features.



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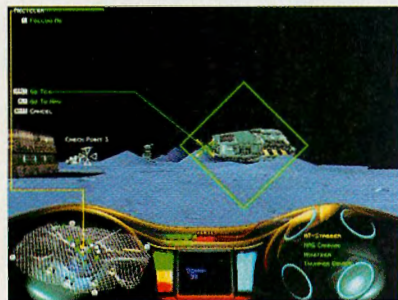
power play

It's like *Get Info* for games, you know—all the news and a whole lot more.

GameWIRE

The new year is upon us, and a lot of Mac addicts are thinking, "Out with the old, in with the new." But there's an old event we have to keep for this year and beyond, the **NATIONAL MACINTOSH GAMING CHAMPIONSHIP**. This event debuted last July at Macworld Expo New York, and the tournaments are on for Macworld Expo San Francisco in January! Produced by Double Exposure and IDG, the National Mac Gaming Championship '99 Series will feature bigger, better, and faster games such as Unreal and Myth II. What's new this year? You have to be 17 or older—life is cruel, huh?

THE ARCADE CLASSIC BATTLEZONE got a modern makeover and is coming to the Mac.



Speaking of cruelty, **THE DAIMYO PROJECT IS DEAD**. Daimyo was the game conversion based on the Myth engine and set in medieval Japan. Unfortunately, due to internal conflicts, the game team and the publisher split up. What's worse? Interplay, the publishers of **CARMAGEDDON 2: CARPOCALYPSE NOW**, won't be publishing a Mac version. Who will rise to the challenge and port this title to the Mac? We want to drive that combine harvester over Miss Daisy!

All is not lost, though, because **LOGICWARE HAS ANNOUNCED THREE GAMES** for '99: Battlezone (all right!), Zork Grand Inquisitor (woohoo!), and Interstate '76 Arsenal (who needs Carmageddon 2, anyway?). Likewise, **FREEVERSE SOFTWARE** will make these titles available: Deathground, a gangsta game; Cribbage, a classic card game; and Blaze of Glory, a turn-based strategy game. The other good news is that Conix, overseer of OpenGL, made **OPENGL 1.5 AVAILABLE FOR THE MAC**. What does it mean? For game develop-

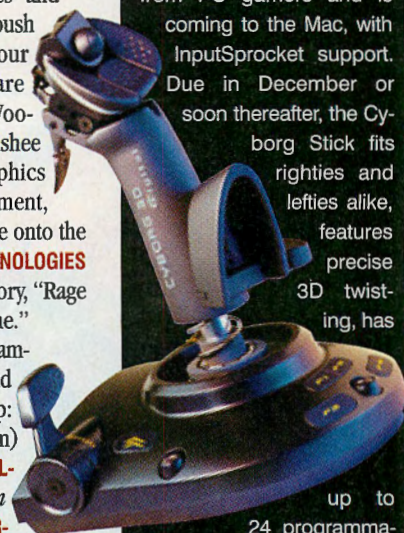


ers, it means cool tools for better rendering engines, and for gamers, better textures and shapes. Of course, to push polygons around, your Mac needs hardware acceleration. With Voodoo2 and Voodoo Banshee starring in the graphics acceleration firmament, what else could explode onto the Mac? What's **ATI TECHNOLOGIES** up to? Check out our story, "Rage 128 Against the Machine."

Also, since Mac gaming's been on the up and up, Gamecenter (<http://www.gamecenter.com>) started a **NEW MAC COLUMN** called *Forbidden Fruit*, and **NEXT GENERATION ONLINE** (<http://www.next-generation.com>) has hopped back on the bandwagon to cover Mac games. Its head honcho even popped in to ask MacAddict for help. Man, everyone's kung-fu fighting!—JH

GAMES & GEAR

You gotta check out the Cyborg 3D Stick from Saitek USA—it rocks! The Cyborg 3D Stick has received critical acclaim from PC gamers and is coming to the Mac, with InputSprocket support. Due in December or soon thereafter, the Cyborg Stick fits righties and lefties alike, features precise 3D twisting, has



up to 24 programmable actions, and sports 16 independent programmable buttons for your twiddling and arcade-twitching pleasure. Don't just take our word, though. Our sister publications, *PC Gamer* and *Maximum PC*, have showered the highest praises on the slick stick. Apple proudly showcases it on its USB page. The Cyborg (\$74.95) is perfect for the iMac or any Mac with a USB interface. Sources say an Olympic weapon inspired the design, but we're still trying to figure out which one. Beauty's only skin deep; the stick's inner design, featuring ratio digital technology, is what counts. Get ready to rumble!—JH

TOP 10 GAMES

OCTOBER RANK	SEPTEMBER RANK	GAME TITLE	PUBLISHER
1	new	MAC PAK	Sierra/Cendant Software
2	1	UNREAL	MacSoft/GT Interactive
3	2	DEER HUNTER	MacSoft/GT Interactive
4	5	MONOPOLY GAME	Hasbro Interactive
5	3	CIVILIZATION 2	MacSoft/GT Interactive
6	6	MYTH: THE FALLEN LORDS	Bungie
7	new	TOMB RAIDER II	Aspyr Media
8	9	DUKE NUKEM 3D ATOMIC	MacSoft/GT Interactive
9	8	REAL POOL	MacSoft/GT Interactive
10	10	MAC PACK BLITZ	Aztech New Media

Source: PC Data

Rage 128 Against the Machine

ATI and 3Dfx announce new chips

The graphics acceleration wars shifted into high gear recently with some titillating technological advances. Chip makers ATI Technologies and 3Dfx both announced potent new chip sets, expected to come to the Mac.

ATI Technologies launched the Rage 128 in late August. Although ATI didn't announce any Rage 128-based Mac products at the time, it's scheduled to introduce Rage 128-equipped boards to acceleration-hungry Mac users at Macworld Expo in January. ATI has the lead in the graphics race—in addition to selling add-in boards, it currently provides all new Macs with onboard 2D-3D acceleration. The new Rage 128 will support RAVE and the big kahuna API, OpenGL. Even better, the Rage 128 features integrated DVD decoding and, on boards aimed at professionals, will sport at least 32MB of video memory. ATI also plans to make a dedicated Rage 128 gaming card for hard-core gamers.

3Dfx Interactive announced Voodoo3 (aka Avenger) at Comdex in November, blow-



PUMPED THROUGH RAGE 128 and captured at 1,028 by 768, this image shows off antialiasing, true color, and—best of all—dynamic lighting effects, the future standard in both 2D and 3D graphics.

ing everyone's socks off with a faster-than-anything-on-the-planet integrated 2D-3D technology. Set to debut in late summer, Voodoo3 will offer MPEG2 and DVD acceleration, as well as 7 million triangles per second and resolutions as high as 2,048 by 1,536 at 75Hz. While no Mac developer has licensed it yet, expect that to change soon.—JH

ask the game guru

power play

Q. I am new to the 3D graphics world, and one of the things I want to do is play awesome 3D games. I was wondering which board I should buy to get the best performance for the best price. One of the options for the Power Mac G3 at the Apple Store is a 128 2D and 3D accelerator. Should I get this? I am totally confused and overwhelmed. Can you please help me?—Mark Suman

a. Don't buy the 128 2D and 3D ixMicro card. While ixMicro makes excellent cards for professional graphics, its cards aren't for 3D gaming. To get the most bang for your buck, get the VillageTronic MacMagic (\$99), which sports 8MB of video memory and runs on 3Dfx's Voodoo Graphics chip set. The MacMagic displays games at 800 by 600 resolution. Plus, it runs both 3Dfx (Glide) and RAVE games and comes with an over-clocking utility so you can squeeze out more power.

All these hot sites



MacAddict is a monthly magazine, CD-ROM, and Web site, updated daily for the Macintosh enthusiast.



MacCentral offers the latest Mac news, software updates, editorials, and informative links.

deal·mac

Deal-mac finds hot offers on cool products, helping Mac shoppers stay informed and save money.

VersionTracker Online

VersionTracker reports the current versions of all your favorite Macintosh software, revised continually as updates roll in.



As the Apple Turns follows the twists and turns of the Apple Computer saga in soap opera format.

MacResourcePage

Mac Resource Page provides timely news and reviews, special deals, bug reports, how-to primers, and the famed MRP RAMWatch pricing guide.



Evangelist is the official home of Guy Kawasaki's mailing list. Join the fight for the Mac!

MacFixIt

MacFixIt brings you the latest news and tips on everything related to troubleshooting your Mac.



O'Grady's PowerPage is the ultimate resource for PowerBook users, with notebook news and mobility message boards.



AppleJedi is the e-zine for evangelists, developers, solutions providers, and Defenders of the OS.

INSIDE MAC GAMES

Inside Mac Games is a monthly CD-ROM magazine devoted to Mac games, with its own news-packed Web site.



MacSurfer's Headline News gathers links to all—and we mean all—the latest Mac news and views from all over the Web.

EveryMac

EveryMac tells you who makes what, with a specs-laden index of Macs and Mac-compatibles.



Iconfactory presents quality freeware icons for your Mac from the masters of the iconic arts.



are just a click away!

<http://www.MacAddictNetwork.com>



how to

Audacious audio! Burn your own CDs and make your Mac an Internet radio station.

Digitize Your Wax (That Is, Burn Your Own CDs)

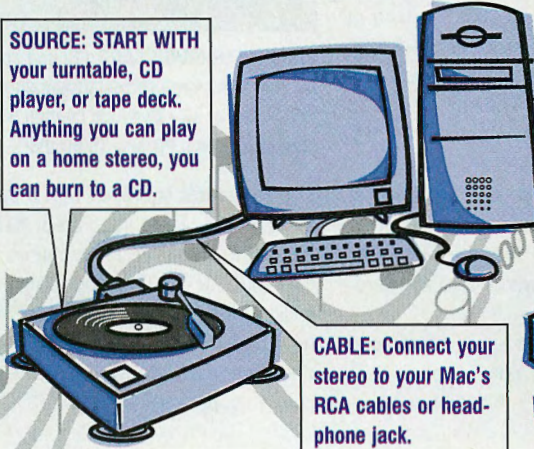
by Owen W. Linzmayer

Do you love the digital clarity of CDs, but lament the fact that you can't create your own "best of" audio CDs, as you did in college with your infamous compilation cassettes? Wish you put your new Beck LP onto a CD? Snap out of it, buddy! Armed with the latest generation of low-cost CD-R (CD-Recordable) drives and a few handy pieces of software, you can now burn your own CDs cheaply and easily. Whether you fancy yourself a mix master culling favorite tracks from old albums, or you just want a copy of a CD minus that clunker on track three, here's everything you need to know to start your own record label.



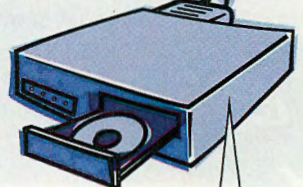
FIND ULTRA RECORDER 2.4.1 on The Disc.

SOURCE: START WITH your turntable, CD player, or tape deck. Anything you can play on a home stereo, you can burn to a CD.



MAC: INSTALL ADAPTEC'S Toast and convert all audio files to AIFF format.

CABLE: Connect your stereo to your Mac's RCA cables or headphone jack.



CD BURNER: You can pick one up for as little as \$300.

1 Buy a Burner

To create audio CDs you can listen to on a standard CD player—such as the one in your stereo system or in your car—at a minimum you need a CD-R drive. Basic external SCSI versions sell for \$300 to \$550, depending primarily on their speed.

CD-R drives can read standard audio and data CDs just as a CD-ROM drive can, with the added benefit of being able to write, or burn, blank

CD-R discs. You can't alter written CD-Rs, but any CD-ROM drive can read them, and if they contain audio (with or without other media), any CD player can play them.

CD-R drives are usually described in terms of their write and read speeds, expressed as a multiple of the 150-Kbps data transfer rates of the first

generation of CD-ROM drives. For example, a 2X6 CD-R drive can write CD-R discs at twice the first-generation data transfer speed, and can read all discs six times faster than that speed. A fast drive reduces the time it takes to write discs, but even the slowest drive is up to the task if you can't afford a high-end model, or if you find a great deal on an older used drive.

Instead of buying a CD-R drive, you could opt for a CD-RW (CD-Rewritable) drive. CD-RW drives offer all the same features as CD-R drives, plus the ability to *rewrite* special CD-RW discs, which sell for as little as \$10 each. CD-RW drives cost from \$400 to \$600, but to play your disc on a CD player you'll still need to write to CD-R blanks, as audio CD players can't read CD-RW discs.



2 Decide on a Disc

Blank CD-R discs cost as little as \$1 each in bulk from firms such as Media Supply (800-944-4237 or 610-458-9100, <http://www.mediasupply.com>) or AMC Direct (888-616-4592 or 425-558-3100, <http://www.mam.amc-direct.com>). Not all blank discs are created equal, however. For best results and longest life, pay a little extra to buy name-brand discs with gold dye layers (the recording surface). Cheaper generic discs with silver or green dye layers may initially function just fine, but they are prone to deteriorate over time or refuse to work in certain drives.

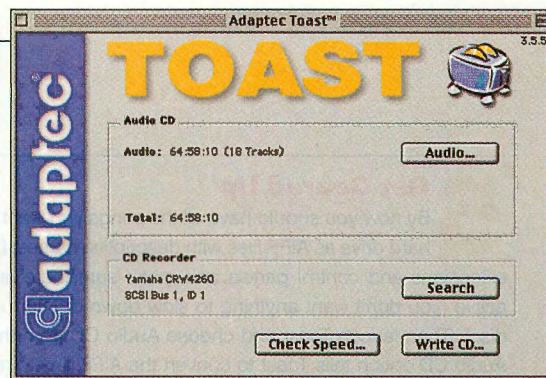


CHEAPO BLANKS—the ones that aren't gold—won't last as long and usually don't come with protective jewel cases.

3 Secure Software

Dozens of vendors sell different model drives and blanks, but for software there's really only one package to consider: Adaptec's Toast (800-804-8886 or 408-945-8600, <http://www.adaptec.com>). If your drive didn't come with Toast, expect to pay \$75 for a copy on the street. Toast 3.5.5 requires a desktop Mac (sorry, PowerBook users, but Adaptec says your SCSI port isn't fast enough to keep up while writing discs) with a 68040 or faster CPU, 16MB of free RAM, and System 7.5 or later.

ADAPTEC'S TOAST is the best software to use with your CD burner.

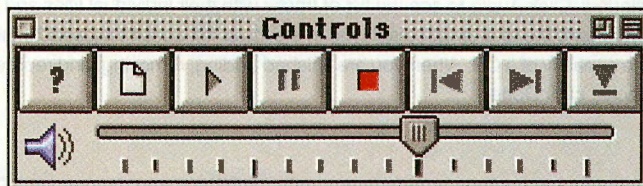


how to

4 Sample from the Source

With all the basic hardware and software in place, it's time to put together the audio tracks you want to burn to your own CD. Start by clearing out 650MB of hard drive space to hold all the songs that will fit on a 74-minute disc. How you obtain the audio depends upon the source (you can mix and match audio from CD, LP, cassette, eight-track, and so forth), but ultimately you need to save the songs as AIFF (audio interchange file format) files on your hard drive for use with Toast. See "Import Audio" below for the most common options.

In addition to CDs, tapes, and LPs, you can convert and burn MP3s. MPEG Layer 3 format is a compression technology that reduces file size



NORMAN FRANKE'S SOUNDAPP will get all your MP3s to disk.

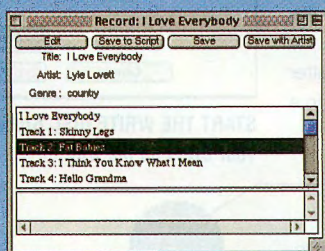
without an appreciable loss in quality. Norman Franke's freeware SoundApp (<http://www-cs-students.stanford.edu/~franke/SoundApp>) plays MPEG 3 files and can convert them to the AIFF files.

Import Audio

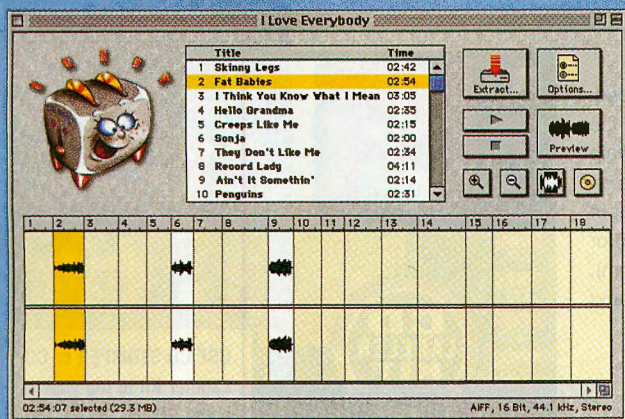
CD Tracks

If you're compiling songs from audio CDs, get a copy of Glenn R. Howes's InCDius GH, a CD player with a cool twist (<http://www.xnet.com/~grhowes/html/helpful.html>). When you pop a disc into your drive, press Command-K and this little utility will suck album and track titles off the Internet from a huge database, eliminating the need to enter this information manually. These titles won't get written to your disc, but they will prove helpful in identifying tracks later.

You could take advantage of Toast's ability to extract audio directly from existing audio CDs as you burn your CD-R discs. But to do this you need to swap discs manually, so you're tied to the computer during the entire process. To free yourself, use Toast Audio Extractor to read the desired audio tracks off CDs beforehand and save them as AIFF files on your hard drive.



GRAB ALBUM AND SONG TITLES off the Net with InCDius GH.



EXTRACT RAW AUDIO DATA right off CDs using the utility bundled with Toast.

Albums and Cassettes

Using songs from existing audio CDs or MPEG 3 files is easy because the data already exists in digital form. But if you want to archive old phonograph albums, cassette tapes, or any other analog audio source, you need to record the songs using your Mac. If you have an AV Mac, all you need to do is run standard audio patch cables from the sound-out connectors on the back of your stereo system to the RCA phono jacks on your Mac. If the only sound input on your Mac is a microphone port, pop on down to your local Radio Shack and pick up a stereo Y-adaptor (catalog number 274-369B, \$3.69). This converts your Mac's microphone jack into dual RCA phono plugs. On your stereo system, cue up the song you want to record, then launch EJ Campbell's shareware Ultra Recorder (<http://members.aol.com/EJC3>) and set the pop-up menus as follows.

Click Record, specify where to save the AIFF file on your hard drive, then drop the needle on your Victrola and press Command-R to begin recording. When the song finishes, stop recording and save the file to disk. If you want to get fancy with cleaning up and manipulating audio files, use a commercial program such as Macromedia's SoundEdit 16 (800-470-7211 or 415-252-2000, <http://www.macromedia.com>) or Arboretum Systems' Ray Gun (800-700-7390 or 650-738-4750, <http://www.arboretum.com>). Repeat as necessary

until you've recorded all the songs you want to put on your CD.



SAVE ANALOG AUDIO SOURCES as digital files using Ultra Recorder and your Mac's microphone port.

how to

how to

5 Get Geared Up

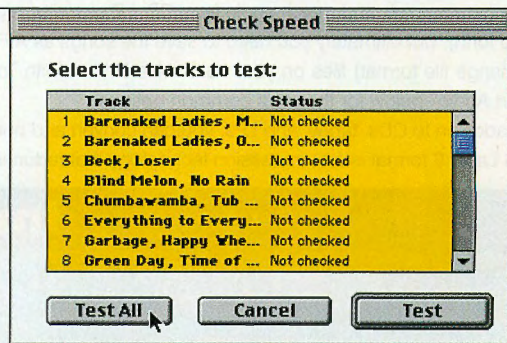
By now you should have all the songs you want to record saved on your hard drive as AIFF files with descriptive names. Disable any unnecessary extensions and control panels and make sure there are no background tasks active (you don't want anything to slow down or interrupt the Mac as it burns a disc). Then launch Toast and choose Audio CD from the Format menu (Toast's Audio CD option tells Toast to convert the AIFF files to music CD format). Revert to the Finder and select the desired AIFF files, then drag them into the open Toast window. Click Audio to see the list of tracks with their individual titles and lengths. Make sure the total length displayed in the lower left doesn't exceed 74 minutes—the capacity of a CD. When you are finished adding, removing, and reordering the tracks, click Done.



CHOOSE YOUR TRACKS but stay under 74 minutes.

6 Test Toast

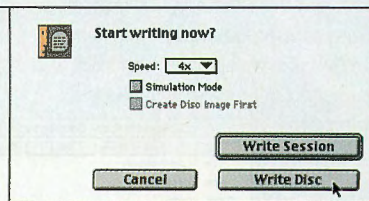
Since you only get one chance to write a CD-R disc, you want to make sure nothing goes wrong. Click Check Speed, and in the box that pops up click Test All. Toast goes through the motions of reading the files into its RAM cache and then simulates burning the audio onto disc. If at any point it runs out of data to write, the test fails, in which case you should try again after increasing the RAM cache (choose Preferences from the Edit menu) or reducing the write speed. Even if your drive passes the test writing at high speeds, consider slowing down anyway so that your audio discs won't suffer from the pops and dropouts that are more common at higher speeds.



RUNNING A TEST will prevent time-consuming mistakes.

7 Burn, Baby, Burn

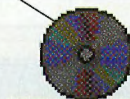
Once you adjust the settings so that you pass the test, return to the main Toast window and click Write CD. In the smaller window that appears, click Write Disc (not Write Session), and Toast begins burning the tracks onto the blank CD-R in the drive. The time required to complete the task depends on the speed of your drive and the combined length of the audio tracks, but no matter what, it's going to take a while. In other words, now is a good time to indulge in a refreshing beverage while reading a stimulating magazine.



START THE WRITE DISC process and relax. Your CD is on the way.

8 You're Ready to Rock

When Toast is done writing your disc, eject the disc from the CD-R drive, pop it into the CD player in your stereo system, turn the volume up to 11, press the play button, and enjoy the pleasing sounds of your very own disc. Pretty freakin' cool, huh?



Audio CD 1

9 Mask Your Masterpiece

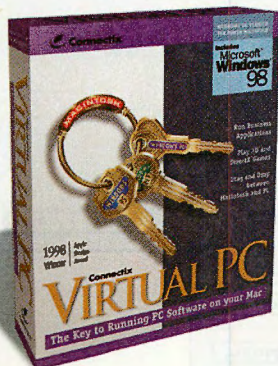
Once you confirm that all the songs were burned just as you intended, you'll have to do something with that big blank space on the top of the disc. To label your CDs, you could just write on them with a water-based felt-tip pen (an alcohol-based pen will eventually destroy the special lacquer coating on the disc), but why settle for something as lame as that? Instead, get CD Stomper for \$50 from Stomp (888-522-3523 or 949-250-6771, <http://www.labelcd.com>) or Neato's CD Labeler Kit (888-575-3866 or 203-466-5170, <http://www.neato.com>). Both of these products contain everything you need—software, templates, and label stock—to give your discs a professional finish.



USE CD STOMPER or CD Labeler Kit to tag your home CDs.

Owen W. Linzmayer's (owl@bigfoot.com) latest book, *Apple Confidential*, is a revealing look at the history of our favorite computer company. For more info, visit <http://www.netcom.com/~owenink>.

Sometimes *faking it* is better than the real thing



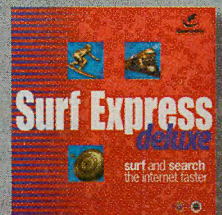
Now your Mac can do Windows

With Connectix Virtual PC™, you can run the latest PC software including business, games, and home applications, on your Mac. Available with DOS®, Windows™ 95 and Windows 98.

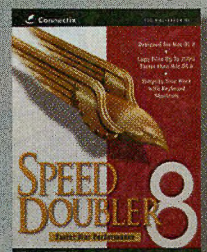
To buy now or for more information:

www.connectix.com/ma
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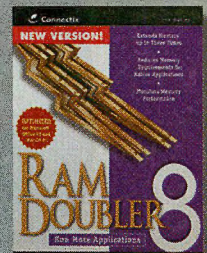
OTHER AWARD-WINNING CONNECTIX PRODUCTS



Surf and search
the Internet faster



Speed up your Mac



Run more applications
simultaneously

 **Connectix**



how to

Turn Your Mac into an Internet Radio Station with QuickTime 3.0

by Mark Simmons

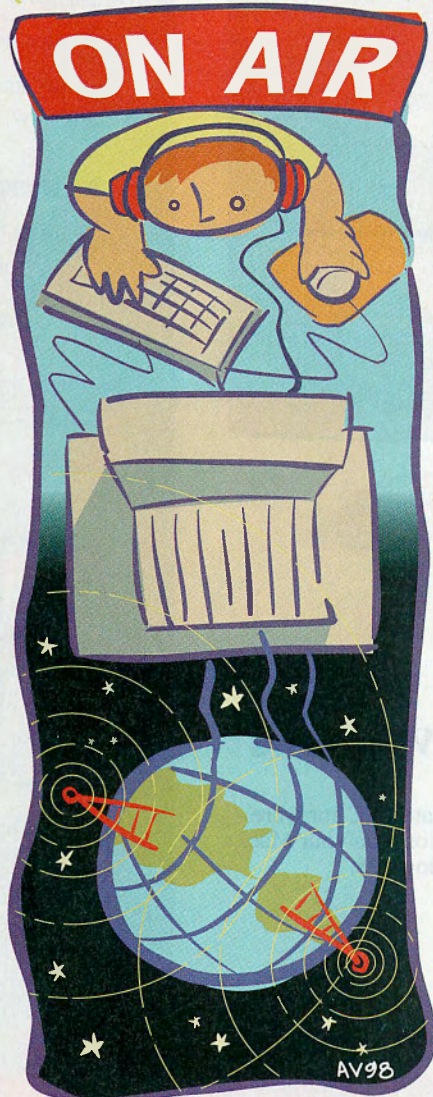
how to
development

Why settle for just a Web page when, for \$30 or less, you can break into the Internet radio business as well? Thanks to the myriad capabilities of Apple's QuickTime 3.0, it's as easy for you to post your rantings and ravings online as it is for your prospective listeners to tune in. You can accomplish all this without tricky and expensive server software, and your audience will be able to enjoy your broadcast even over a slow modem connection.

When we applied this technology to package our MacAddict Hour radio show for online distribution, the results were impressive. We took a 53-minute show weighing in at over 250MB in raw WAV format, and wrestled it down to a few megabytes of high-fidelity audio using only QuickTime 3.0 Pro and Qualcomm PureVoice compression, which Apple licensed for use in QuickTime 3.0.

In this how-to, we show you how to convert your audio files into PureVoice-compressed

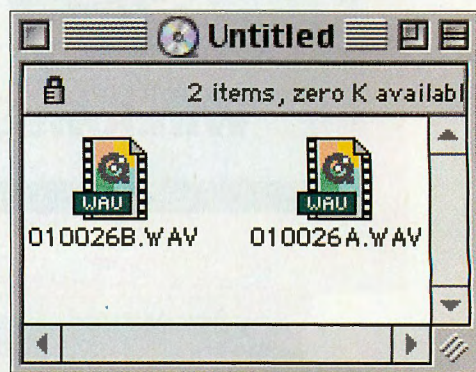
QuickTime movies, post them on the Web, and create a multiple-choice movie that accommodates a broad range of bandwidths. All you need is QuickTime 3.0, the MoviePlayer utility, and Apple's MakeRefMovie utility (on The Disc). To access MoviePlayer's authoring features, you need the Pro version of QuickTime 3.0 or the older MoviePlayer 2.5. If you have the free version of QuickTime 3.0, older versions of the MoviePlayer can utilize the underlying QuickTime 3.0 compression schemes.



FOR \$30 OR LESS, you can broadcast to the Web with a Mac and a modem.

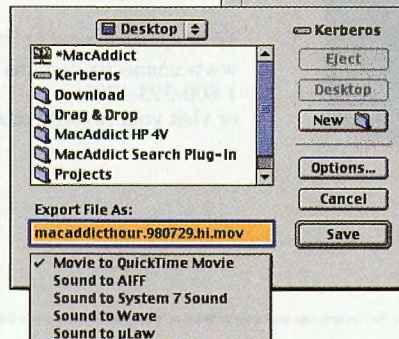
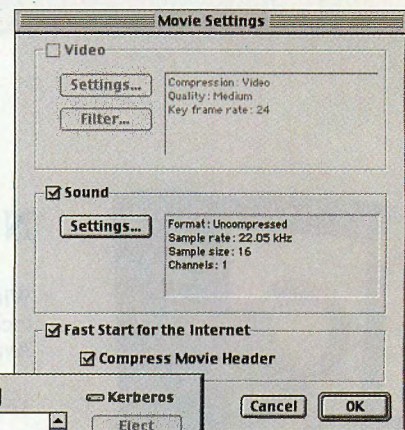
1 Acquiring the Audio

Naturally, you need a sound file of some sort to begin. In working with the MacAddict Hour episodes, we started with WAV sound files burned onto a CD-ROM by the diligent audio engineers at Imagine Radio (<http://www.imagineradio.com>). Since each episode was saved in two parts, we had to splice them together into a single file by selecting the contents of one movie, copying it, and pasting it into the second—a trivial enough task with MoviePlayer. You can use sound files in just about any conceivable format, including Macintosh sound files, Unix AU, Windows WAV, audio CD tracks, MPEG Layer 1 or 2, or Sound Designer II; MoviePlayer will open 'em all.



2 The Export Experience

Now that you have your sound file open in MoviePlayer, you need to export it as a QuickTime movie. Select Export from MoviePlayer's File menu. If you're using MoviePlayer 3.0, you won't see this command unless you've registered your copy of QuickTime. In the Export dialog box, use the Export File As pop-up menu to specify that you're exporting your sound as a QuickTime movie, then click the Options button to adjust your settings. In the Movie Settings dialog box, disable the video track if necessary—our radio show episode never had one—and check Fast Start For The Internet and Compress Movie Header. Finally, click the Settings button to select your sound compression options.



Immediate Web Audio—Even for Slower Modems

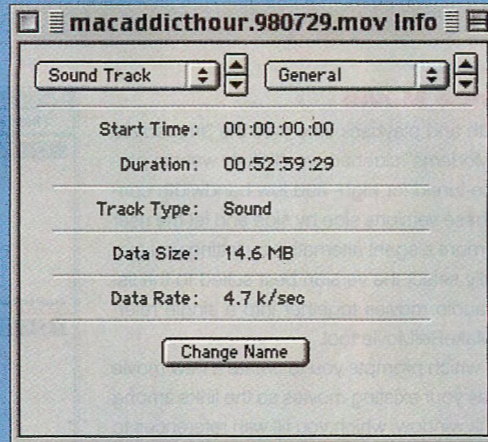
When a prospective listener comes across your PureVoice-compressed movie online, it can begin playing even as it downloads, thanks to the Fast Start option you select during the export process. However, Apple's Fast Start trick isn't the same thing as RealAudio-style streaming features. Instead, the QuickTime browser plug-in estimates how long it will take to download the entire movie, then delays playback until it calculates that the download will finish just as the playback ends.

Our high-quality MacAddict Hour episode should download in about 36 minutes via a 56-kbps modem operating at its theoretical maximum efficiency (hah!), and will thus begin playing almost immediately. But a 33.6-kbps modem will take about 60 minutes to download the movie; since our episode is 53 minutes long, there will be a delay of 7 minutes or more, scuttling our promise of immediate gratification. For

this reason we created multiple versions of the movie, so listeners with slower connections can experience the wonders of play-as-you-download.

If you want to know the break-even point for your movie, you'll need to figure out its average data rate. Select Get Info from MoviePlayer's Movie menu, and choose Sound Track and General from the pop-up menus to find the average data rate in kilobytes per second (KBps). The movie's data rate in kilobits per second (kbps)—the unit of measurement for modems—equals this number multiplied by eight.

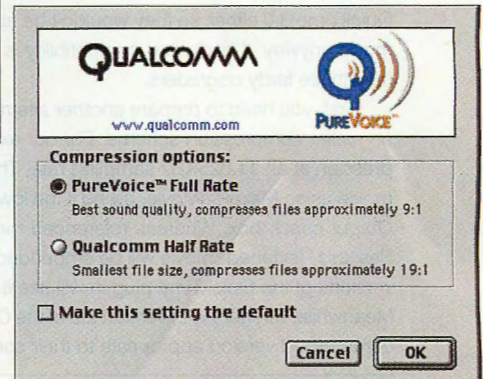
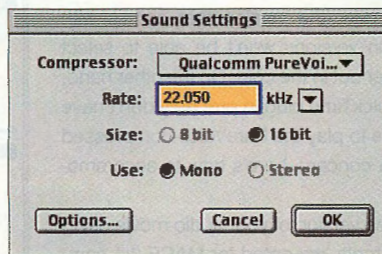
For our high-quality movie, the data rate is 4.7 KBps, or 37.6 kbps. This should be well within the capabilities of a 56-kbps modem, let alone an ISDN line, but too much for a 33.6-kbps modem. Our low-bandwidth version, whose size is just 3,748,842 bytes, has a data rate of 9.2 kbps—adequate even for a 14.4-kbps modem on a bad day.



MOVIEPLAYER'S GET INFO WINDOW tells you everything you need to know about your movie.

3 Sound Settings Savvy

Now it's time to tackle those Sound Settings. QuickTime 3.0 provides 11 different sound compression methods (in QuickTime jargon, these compression/decompression algorithms are called *codecs*), but the Qualcomm PureVoice method is specially designed for voice data, so it's the one we use for our little talk show. (Music makers can use QuickTime's Qdesign music codec, licensed from Qdesign Corporation.) A click on the Options button lets us choose between full- and half-rate compression; the latter produces a file that's half the size, at the cost of introducing some noticeable distortion. We can also control the size-versus-quality trade-off by reducing the sampling rate. For the MacAddict Hour episodes, we opted for a high-quality setting that combined full-rate compression with the original sampling rate of 22.05KHz, while for our low-quality version we used half-rate compression and halved the sampling rate to 11.025KHz. When you've tweaked everything to your satisfaction, close the dialog boxes and save your movie.

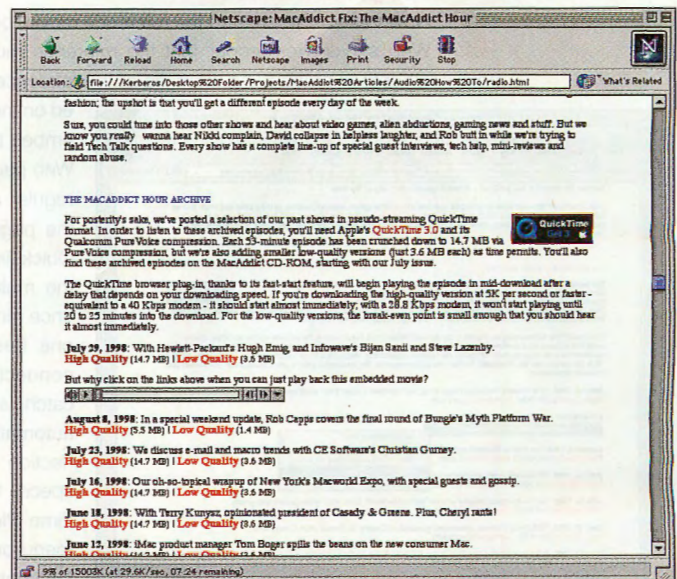


4 Page Presentation

Now it's time to present your work to the world's waiting ears. Once you've uploaded your movie to your Web server, you can either link to it in traditional fashion, or integrate it directly into a Web page using an `<embed>` tag. Ever considerate of our listeners, we give them a QuickTime movie controller rather than hiding the movie and starting the playback automatically; since our audio movie has no accompanying visuals, we need allot only 16 vertical pixels for the QuickTime controller. Thus, our `<embed>` tag looks something like this:

```
<EMBED SRC="http://www.macaddict.com/software/radio/  
macaddicthour.980729.hi.mov" HEIGHT=16 WIDTH=240 VOLUME=100  
PLUGINSAGE="http://www.apple.com/quicktime/download"  
CONTROLLER=TRUE AUTOPLAY=FALSE>
```

The pluginspage parameter steers users to Apple's QuickTime download page in the event that they don't have the QuickTime plug-in. Since PureVoice compression is supported only in QuickTime 3.0 or later, would-be listeners with older versions of QuickTime will likewise need to upgrade, so your Web page should provide a link to <http://www.apple.com/quicktime/download> for their convenience.



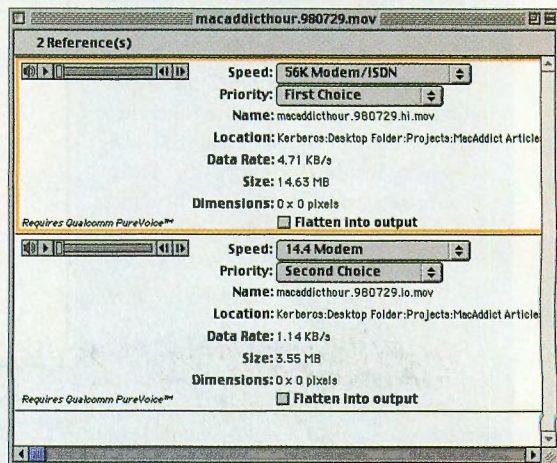
how to

how to

5 Ready a Reference Movie

Given the vagaries of bandwidth and playback time (see the "Immediate Web Audio—Even for Slower Modems" sidebar), you'll likely want to provide multiple versions of your movie fine-tuned for high- and low-bandwidth connections. While you could just post all these versions side by side and let the user figure it out, Apple has devised a much more elegant alternative by letting you create "reference movies" that automatically select the version best suited to the listener's connection speed. To tie your audio movies together into a single reference movie, you need to use Apple's MakeRefMovie tool.

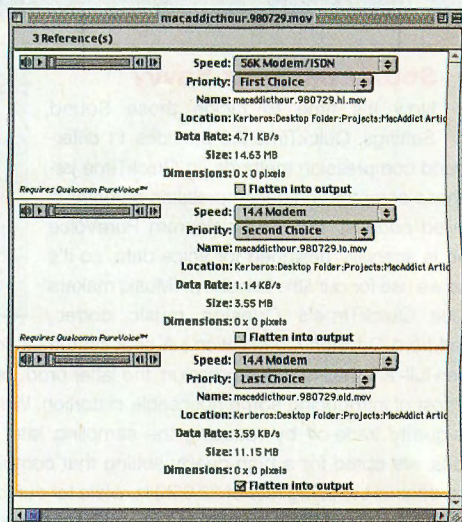
Begin by launching MakeRefMovie, which prompts you to create a new movie (be sure to save this in the same folder as your existing movies so the links among them remain intact). You then get a blank window, which you fill with references to the various versions of your audio movie. To add a movie, either choose Add Movie File from the Movie menu, or simply drag it from the Finder. Once you've added a movie, you can see its size and data rate (in kilobytes per second—multiply by eight to get the equivalent modem speed), specify the connection speed for which it's best suited, and assign a higher priority to the better-quality versions. Save your reference movie when you're done.



6 Backward Compatibility

As useful as the reference movie option may be, only version 2.0 or later of Apple's QuickTime browser plug-in (the version that comes with QuickTime 3.0) will support it. Earlier plug-in versions won't be able to select among the referenced movies, leaving the user out in the cold. On the other hand, listeners who don't have version 2.0 of the QuickTime plug-in probably don't have QuickTime 3.0 either, so they wouldn't be able to play the PureVoice-compressed movie anyway. If backward compatibility is a concern, here's how to accommodate these tardy upgraders.

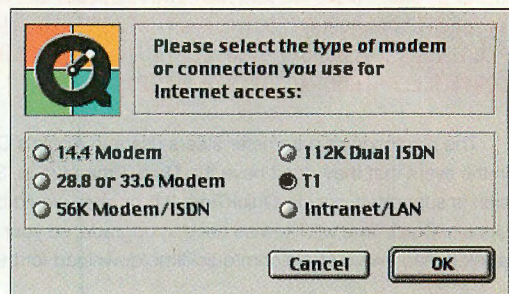
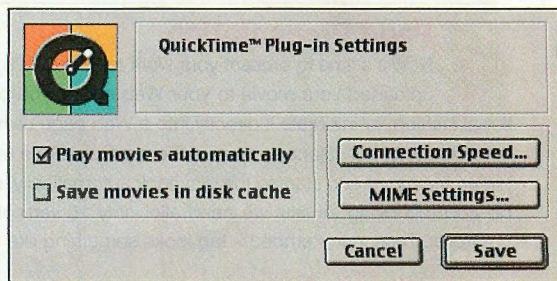
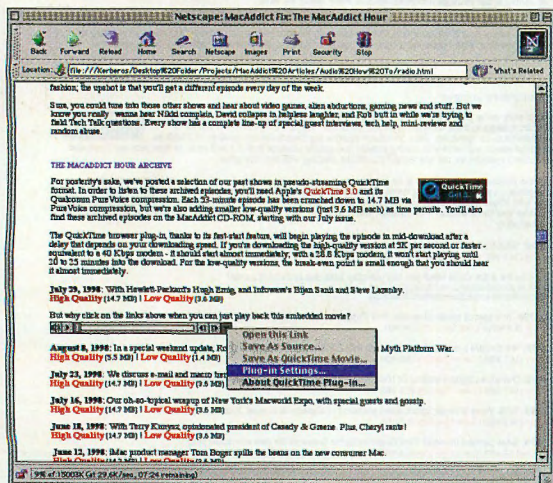
First, you need to prepare another alternate version of your audio movie using an earlier compression scheme. For our example, we opted for MACE 3:1 compression at an 11.025KHz sampling rate. Then add this version to your reference movie using MakeRefMovie, giving it the lowest priority, and check the Flatten Into Output check box. Whereas referenced movies are normally stored in separate files, this "flattened" movie will be embedded in your reference movie so that older versions of the QuickTime plug-in will see it and play it back like a normal movie. Meanwhile, listeners with version 2.0 of the QuickTime plug-in will get a PureVoice-compressed version appropriate to their connection speed.



7 Playback Attack

Now that you've created the reference movie, post your movies on your Web server. Remember that the reference movie points to the other movies rather than embedding them, so all the referenced movies must be posted on the server as well. You can embed the reference movie in a

Web page, just as we did with a regular movie in Step 4. When the page is viewed, the user's QuickTime plug-in will look at the multiple versions the reference movie offers and select the one best suited to the user's connection speed. The one catch is that the plug-in can't automatically figure out the connection speed—the user must specify this by selecting QuickTime Plug-in Settings from the menu on the right-hand side of the controller.



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**FIND
MABASOFT
on The Disc.**

Q I own a Performa 6300, hooked up to an Apple Multiple Scan 15 Display that came with the computer. Yesterday I noticed my monitor is displaying things in a blue hue. Shades of red have become shades of black, and white is now a dim blue. It's as if I am looking at the screen while wearing blue-tinted ski goggles. Sometimes the monitor will randomly jump from blue to normal to blue. Sometimes it stays blue, sometimes it stays normal. Please help! What could be wrong with my monitor?

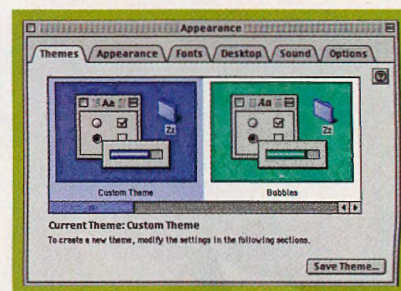
A Everything I've uncovered on this subject suggests the problem is that the Apple Multiple Scan 15 Display is a lemon. Boatloads of people have reported this problem to me and posted complaints on Apple's Tech Exchange board (<http://support.info.apple.com/te>).

Nonetheless, for reasons known only to God and Apple (believe me, there are people in Cupertino who think the two are one and the same), the company refuses to acknowledge the problem publicly. The only "official" response I've located was posted by a support representative named Mark, who basically said that Apple doesn't have a special repair extension program for the Multiple Scan 15 Display. An unofficial Apple source, however, told *MacAddict* that there is a known problem with these monitors and Apple is supposed to fix them for free.

I recommend you call Apple customer relations (800-767-2775), calmly describe your problem, and politely ask that Apple repair or replace your monitor for free, even if its warranty has expired. If the representative balks, demand to speak to a supervisor and firmly repeat your request for satisfaction. Be persistent, keep going up the management food chain, and drop the phrase "class action lawsuit" if you think it will help.

Q In Mac OS 8.5, when I switch themes or fonts in the Appearance control panel, my Mac locks up for almost 30 seconds and I can hear the hard drive churning away. I can move the mouse during this period, but can't switch to another application or do anything productive. After the long wait, my new settings take effect, and everything seems to function OK. What's causing this?

A If you have an alias of a large folder or volume in the Apple Menu Items folder, or inside the new Favorites folder, changes to the Appearance control panel can cause the time-wasting behavior you describe. If you remove any such aliases from these locations, the delay disappears. So drag these aliases to the desktop, make the changes you desire, then



IF SWITCHING THEMES in Mac OS 8.5's Appearance control panel ties up your Mac for a long time, an alias in your Apple Menu Items folder may be the culprit.

select the aliases and choose Put Away from the File menu (or press Command-Y).

Q I'm ashamed to admit I haven't updated my system software in at least two years! (I'm still on System 7.5.3!) However, after reading all the rave reviews of Mac OS 8.5, I decided to upgrade. I'm so far behind, I'm at a loss as to what versions I'll need before I can move up to Mac OS 8.5. Help me out of the dark ages!

A No problem, my Luddite friend. This is a fairly common question, which indicates that Apple has a long way to go toward educating the installed base about the ease of upgrading. Here's the deal. If you want to upgrade to a whole new version of the Mac OS, you first need to determine whether your Mac meets the minimum system requirements, most notably RAM and hard disk space. If you have a Mac containing a 68000, 68020, or 68030 CPU with so-called "dirty" ROMs (Mac II, Ix, IICx, or SE/30), you can't go beyond System 7.5.5. If you have a 68K Mac with "clean" ROMs, you top out at System 7.6.1. Macs based on the 68040 can go all the way up to Mac OS 8.1. To run Mac OS 8.5, you must have a Power Mac.

Once you've confirmed your Mac has the horsepower to run a particular version of the Mac OS, just go out and buy the retail package, which contains the installer CD. You don't need to buy and install the interim releases. So in your case, you can go directly from System

Email Etiquette

Owen's Rules to Observe and Obey


I'd like to take a moment to review some basic email pointers. As the *Ask Us* columnist, I literally get hundreds of emails a week, which pretty much qualifies me as an expert on the subject. So pay attention.

■ **WHEN YOU SEND AN EMAIL**, try to make the Subject field as descriptive as possible. For example, when you write to askus@macaddict.com for assistance, it's pretty obvious that you have a question, so don't fill in the Subject field with "Question" or "Help!" when you could put a more detailed description of the problem, such as "Where'd my Control Strip go?"

■ **IF YOU'RE WRITING ABOUT A PROBLEM** or question you have about something you've seen on the Web, include the URL for the page in question. Don't assume your recipients have been everywhere online and have photographic memories. Make it easy for them to see what you're talking about.

■ **UNLESS YOU WANT A RECIPIENT TO REPLY** to an email account other than the one you used to send a message, you don't need to repeat your email address in the body of the message. All the recipient needs to do is click the Reply button.

■ **WHEN EXCHANGING A SERIES OF EMAILS**, always quote the relevant portions of the message to which you're responding. This allows the reader to follow the whole thread of the exchange in context. Otherwise, anyone who gets more than a handful of emails a week can't possibly keep them straight.



7.5.3 to 8.5 in one fell swoop, without the bother of first installing 7.6, then 8.0, and finally 8.5. The retail package contains everything you need to transform your Mac to the latest and greatest version of the Mac OS. That's the reason you have to pay for major upgrades. Updates, on the other hand, are reserved for smaller, incremental changes, such as when Apple released Mac OS 8.1 to add a few features and fix some bugs that were hiding in 8.0. Since updates build on a previously purchased retail package, Apple typically gives them away on its Web site, and we often put them on the MacAddict CD.

Q I love my Mac, but I drool when I see a *huge* 8.4GB hard drive for \$250 at Circuit City. Can I use it for my Mac? If not, can I get a similar deal on a Mac-formatted hard drive? My little 250MB drive is becoming tedious.

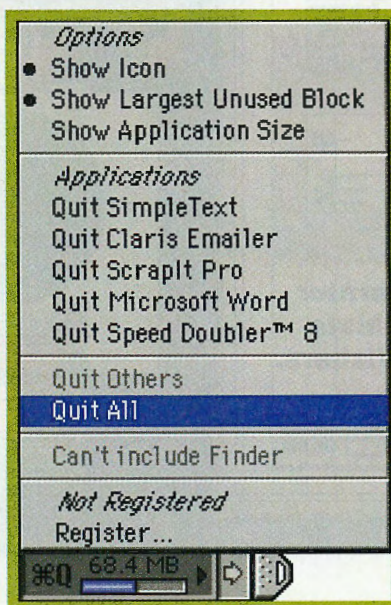
A There is really no such thing as a Mac drive or a PC drive, although they may be marketed that way. It's really a matter of the type of bus the drive uses. The two most common types of drives are SCSI (Small Computer Systems Interface) and IDE (Integrated Drive Electronics, also referred to as ATA). You buy the type that matches the bus used in your computer. Almost every Mac has a SCSI bus on the rear for attaching external SCSI devices, and many Power Macs also have a second internal SCSI bus. PCs, on the other hand, typically use IDE drives, although demanding Wintel users can add a SCSI card to their system to use both types of drives.

SCSI drives are generally faster than IDE, but Apple figured mainstream consumers wouldn't notice the difference, so a few years ago the company began building low-end Macs with internal IDE buses so it could take

advantage of cheaper components. There are too many models to list, but check the technical documentation that came with your computer (or check Get Info on the drive) to determine whether you have SCSI or IDE.

Once you determine the type of bus in your Mac and buy the corresponding drive, you need to format it. Apple's Drive Setup utility tends to recognize only those drive models Apple shipped in its Macs, so you may need to purchase a product such as FWB's Hard Disk ToolKit (650-780-0466 or <http://www.fwb.com>), which can initialize most drive types.

Q Is there a way to quit multiple programs in one step, leaving only the Finder running? When I back up my hard drive, I find it annoying to have to choose Quit from the File menu of each individual application, one at a time.



QUIT EVERY OPEN APP in one step with this simple control strip module from MaBaSoft.

A You need Quit CSM from the Italian programming duo Marco Damaschi and Barbara Canino, collectively known as MaBaSoft (<http://www.k-inet.com/MaBaSoft>). This handy \$5 shareware control strip module lets you quit one or more apps without having to make them active. It also lets you determine each one's memory size without having to choose About This Computer from the Apple menu. Quit CSM also offers an option for displaying the largest unused memory block in the control strip. It's available in English, French, German, and—of course—Italian versions.

Q I just finished zapping the PRAM manually using Command-Option-P-R at startup on my Performa 6400/180. Now whenever I turn on my Mac, I see a little flashing disk icon right before the happy Mac icon appears. Everything else seems to run OK, but I no longer get that warm fuzzy feeling at startup.

A When you zapped the PRAM, you wiped out the setting that tells your Mac which startup drive to use. As a result, it searches for available volumes before finally settling on the internal drive by default. To eliminate this wait, open the Startup Disk control panel and set it to your Mac's internal hard drive again.

Q I understand that prior to Mac OS 8.1, the Finder couldn't handle files larger than 2GB. I was under the impression that Mac OS 8.1 removed this limitation, yet whenever I try to write a 3.3GB file to an HFS+ volume, the write process fails at 2GB. Why?

A You have been misinformed. In System 7, the maximum *volume* size was 2GB. System 7.5 raised this to 4GB, and it increased to 2 terabytes (enough disk space to contain everything ever written about the Internet a million times over) on some Mac models running System 7.5.2 and later. However, the maximum *file* size remains 2GB even if your hard drive uses Mac OS Extended Format (also known as Hierarchical Filing System Plus, or HFS+) in Mac OS 8.1.

Owen W. Linzmayer is a San Francisco-based freelance writer and the author of *Apple Confidential: The Real Story of Apple Computer, Inc.* (for more information, visit <http://pw1.netcom.com/~owenink/confidential.html>). Submit technical questions or helpful tips via email (askus@macaddict.com) or c/o MacAddict, 150 North Hill Dr., Suite 40, Brisbane, CA 94005. Please do not address subscription inquiries, CD problems, or letters to the editor of Ask Us.

Mac OS Memory Tip

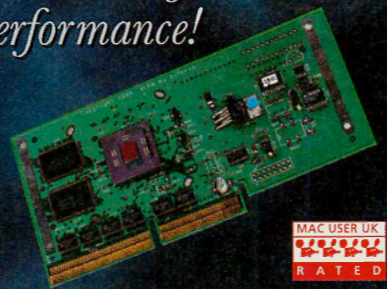
The Memory control panel in Mac OS 8.5 contains a new Startup Memory Tests option that's normally hidden from view. To activate it, hold down Command-Option when you open the Memory control panel. By default, when you cold-start your Mac (in other words, when you press the power button after the Mac has shut down, as opposed to restarting), you hear the startup sound, then wait through a slight delay as the Mac automatically performs various memory and hardware tests. The more memory you have, the longer you must wait until the startup procedure can continue. Apple recommends you leave the Startup Memory Tests on, but it seems to me that if your memory works one day, it's likely to continue working indefinitely, except maybe after you install new hardware in your Mac. So I recommend you turn off these tests to speed up the startup process a few seconds.



TO REVEAL THE SECRET Startup Memory Tests option in Mac OS 8.5, press Command-Option as you open the Memory control panel.

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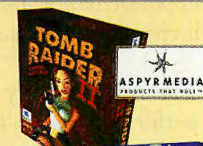
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Mac OS 8.5

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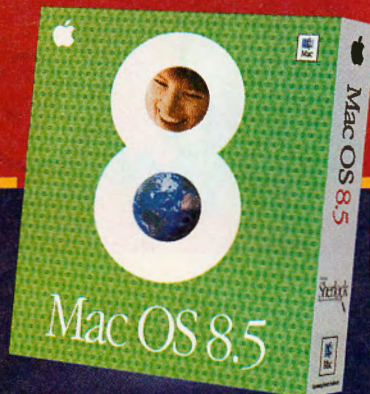
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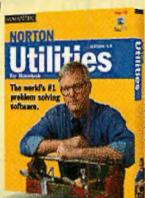
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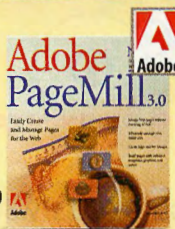
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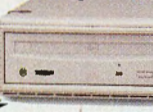


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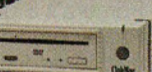
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Processor	RAM	HD	CD	Built-in ZIP	Item #	ONLY
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G3/266	64MB	4.0GB	24X	—	—	—
with Microsoft Office 98						
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G3/300MT	64MB	8.0GB	24X	✓	#19051	\$1999
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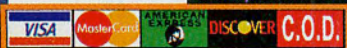


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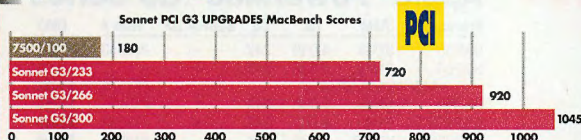


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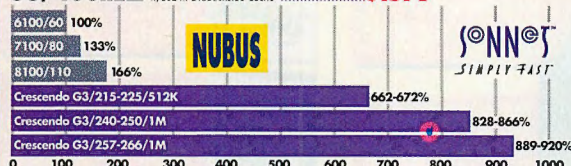
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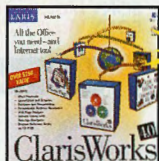


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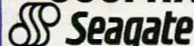
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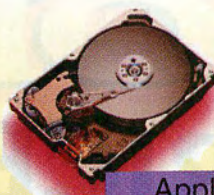
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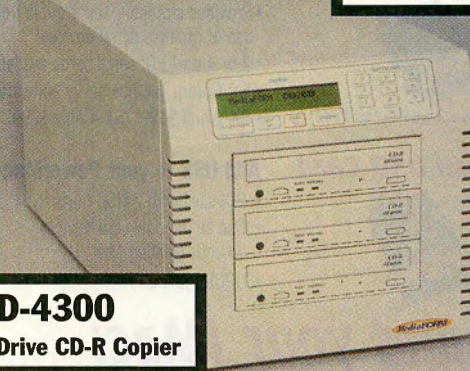
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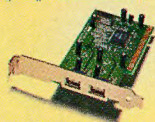


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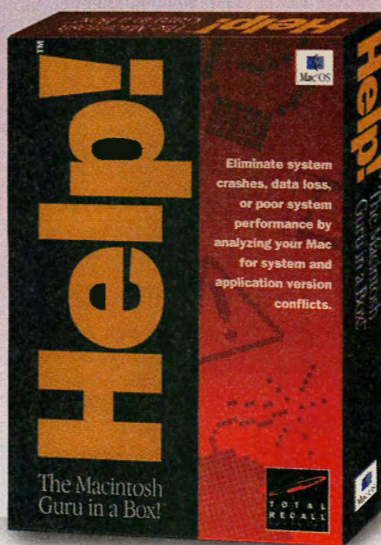
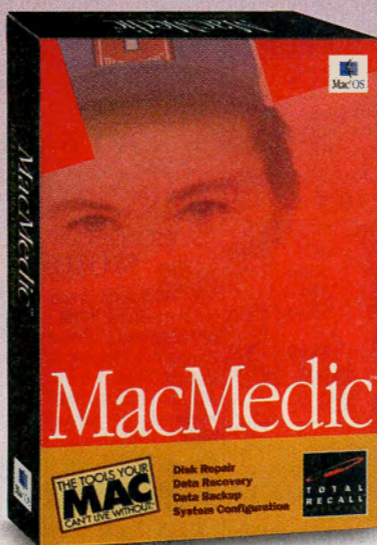
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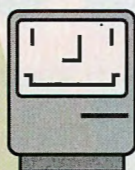
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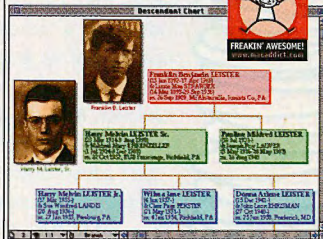
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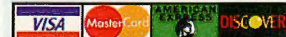
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More months ago, Intuit threatened to quit making Quicken for the Mac. Now, in the wake of Apple's financial recovery, Intuit CEO Bill Campbell has announced a massive Mac-only upgrade of its financial planning software. The new version, Quicken 8.5, will help Mac owners track just how much money they saved buying Mac OS 8.5 instead of a whole new computer. "I saved \$2,300, or the equivalent of 153 pizzas!" said one excited beta tester of Quicken 8.5, which will be available at CompUSA and select Little Caesars starting in late March.

ONCE AGAIN, STAN'S HEAT SINK EARNS ITS KEEP.



DOODLE BY MARK SIMMONS

What's the Big Idea?

Inside sources at FileMaker say the company will capitalize on the momentum of its new "What's Your Problem?" campaign with the precedent-setting "What are you looking at?" ads. Big-name Hollywood actors are reportedly in negotiations to appear in the "Are you talking to me? I don't see any other user-friendly relational database here, so you must be talking to me" and "Am I a clown? Do my Internet integration capabilities amuse you?" campaigns.

Can Love Save Microsoft?

Analysts were shocked by Bill Gates's announcement yesterday that he was handing over Microsoft's reins to Washington native and longtime gal pal Courtney Love. "She's just a lot more qualified than I am," a shaky but relieved Gates told reporters outside his Redmond home.

"I tackled punk rock, I conquered the world of fashion, and now I'm going to kick the crap out of Janet Reno," said a jubilant Love, wearing a stunning beige Thierry Mugler dress, a pair of matching pumps, and chipped pink Hard Candy nail polish. Microsoft's stock jumped six points within minutes of the announcement.

Weighty Issues

You can win a MacAddict T-shirt, a new G3 PowerBook, and a manual pencil sharpener if you correctly answer the following question:

In Apple: *The Inside Story of Intrigue, Egomania, and Business Blunders*, how many times does author Jim Carlton refer to former Apple CFO Debi Coleman's weight problem?

1. Once.
 2. Almost as much as he refers to Steve Jobs's good looks and charming personality.
 3. 100,000 times.
 4. Every time he mentions her.
 5. Not often enough. All female executives—as well as stewardestresses—need to be in top physical shape to compete in a male-dominated world.
- If you chose 2, 3, 4, or 5, you're a winner! Congratulations! Look for your prizes in the mail real soon now! Yep, any day.

Who's on Trial?

Transcripts from the Microsoft antitrust trial or the lost scripts from an Abbott and Costello comedy?

Judge: "Well, [the witness is] not being evasive. He's being responsive to your questions."

Microsoft Attorney: "Sometimes he doesn't seem to understand them, but that's in good faith."

Judge: "Sometimes I don't understand them either."

Microsoft Attorney: "Sometimes I may not understand them myself."

Judge: "Let's take a 10-minute recess."

MACADDICT CORRECTIONS

- In the last several issues, we incorrectly listed Jeff Titterton in the masthead as managing editor. Jeff is actually chief executive of our donut acquisitions department. We apologize for the confusion.
- In last month's issue, we intended to run only advertisements. Unfortunately, a few articles slipped into the magazine as it was being rushed to press due to an unforeseen timing issue. We are sorry for any inconveniences this may have caused.
- In the last issue, we also accidentally devoted 12 pages to upgrading older Macs. Those pages were slated for a diatribe against Bill Gates, but we ran out of things to say after we wrote the title, "Big Meanie, Bigger Glasses." We regret the error.
- The cover of the November '98 issue incorrectly states that Apple is "Back in Black." We meant to say, "Steve Jobs: Still in Black?" Sorry.



Sometimes Newer Is Better Than New.



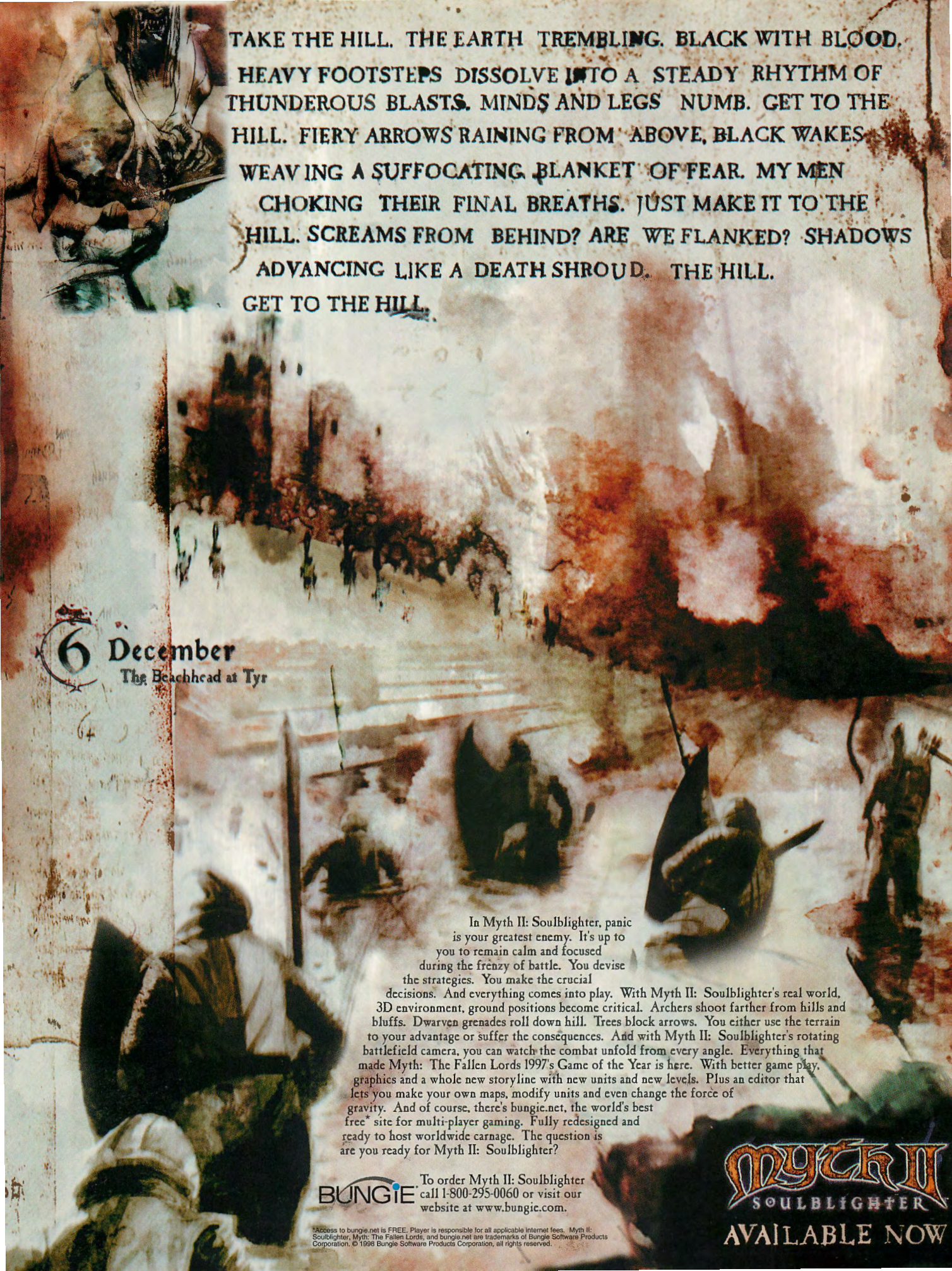
Introducing the Latest Apple G3.

Want G3 power for your trusty old Power Mac? Simply plug in a Newer Technology MAXpower™ G3 processor upgrade card, and for a fraction of the cost of a new machine, your old Mac will go toe to toe with Apple's new G3 models. A MAXpower card is easy to install, and it's available for most Power Macs and clones. So, order a Newer Technology MAXpower G3 card today, and breathe new life into your older Mac.



Newer Technology is #1 in U.S. Mac CPU enhancement sales.*
To learn how to beef up your Mac, visit us at www.newertech.com.

*Information based on PC Data Retail Hardware Report, 1998.



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WEAVING A SUFFOCATING BLANKET OF FEAR. MY MEN
CHOKING THEIR FINAL BREATHS. JUST MAKE IT TO THE
HILL. SCREAMS FROM BEHIND? ARE WE FLANKED? SHADOWS
ADVANCING LIKE A DEATH SHROUD. THE HILL.
GET TO THE HILL.

6 December
The Beachhead at Tyr

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*Access to bungle.net is FREE. Player is responsible for all applicable Internet fees. Myth II: Soulblighter, Myth: The Fallen Lords, and bungle.net are trademarks of Bungie Software Products Corporation. © 1998 Bungie Software Products Corporation, all rights reserved.